

Environmental/Occupational Health Compliance Certification Program

Certification Workbook

For

Autobody Repair Facilities



2002-2003

Rhode Island Department of Environmental Management
Office of Technical and Customer Assistance
235 Promenade Street, Providence, RI 02908 (401) 222-6822
www.state.ri.us/dem

Acknowledgements



The Rhode Island Department of Environmental Management wishes to acknowledge the following individuals who contributed to the development of this workbook.

Principal Authors: Richard Girasole Jr., RI DEM
Joe Antonio, RI DEM
Richard Missaghian, URI
Richard Enander, RI DEM

Contributors: Thomas Uva, NBC
James Gamelin, DOH
Richard Scott, DOH

Reviewers: Autobody Certification Program Steering Committee Members:

Ed Breault, Crown Collision
Pete Landers, Bucci's Autobody
Jeff Mocarsky, MAACO
Rick Ouellette, Cousin's Collision
Kenneth Topalian, Regal Collision
Anthony Victoria, AutoService Autobody
Charles Paglio, American Collision
John DiCola, ABARI
Eugene Park, URI
William Murphy, Davies Career and Technical High School
Jeanne McCarthy, DBR
Ronald Gagnon, DEM
James McCaughy, NBC

DEM Media Programs

Terry Simpson, DEM Office of Water Resources
Craig Roy, DEM Office of Water Resources
Eric Beck, DEM Office of Water Resources
Dean Albro, DEM Office of Compliance and Inspection
Robert Nero, DEM Office of Compliance and Inspection
Mark Dennen, DEM Office of Waste Management
Barbara Morin, DEM Office of Air Resources
Ted Burns, DEM Office of Air Resources

A special thanks to the following organizations:

The Massachusetts Department of Environmental Protection as many components of the Rhode Island Certification Program are based on their Environmental Results Program and Printers Environmental Certification Workbook.

Rhode Island Department of Health, Occupational and Radiological Health Division: James Gamelin and Richard Scott

The University of Florida Environmental Health & Safety Department (web address: www.ehs.ufl.edu) and OSHAstuff.com by Amboy Associates (OSHA Compliance: Manager's Guide to Illness and Injury Prevention, CA, 1995) for ideas and language contained in Section 7 of this manual.

E.I. du Pont de Nemours and Company, Dupont Automotive Finishes for their Autobody Health and Safety Checklists.

Leonard Safety Equipment of East Providence, RI for web-based safety equipment photos.

See Appendix E (page 103) for additional reference and contact information.

Questions and/or Comments can be directed to:

Rhode Island Department of Environmental Management
Office of Technical and Customer Assistance
235 Promenade Street
Providence, RI 02908-5767
(401) 222-6822

Note: This workbook is a public document and is not copyrighted. It may be reproduced for educational purposes, but may not be sold for profit. Also, any and all products and companies identified (through the manufacturer's supplied product literature) in this report are for example only. No endorsements are implied nor should any be inferred.

Director's Message



At the Rhode Island Department of Environmental Management (DEM), we are fundamentally redesigning our approach to environmental regulation for the autobody industry sector. This new common-sense approach allows participating facilities to demonstrate compliance with environmental and occupational health regulations through a voluntary, self-certification program administered biennially by the DEM in partnership with the Rhode Island Department of Health (DOH). Though it does not replace existing state/federal regulatory structures, this program reduces your risk of an enforcement action by allowing you to bring your facility into full compliance without penalty of law while, at the same time, resulting in a lower inspection priority for your company. Moreover, DEM's Office of Technical & Customer Assistance and DOH's Workplace Consultative Services Program will help you every step of the way!

Known as the Autobody Certification Program, this approach was modeled after the very successful Massachusetts's Environmental Results Program. It is designed to give your business the information and flexibility you need to do the job, while improving accountability to the public for environmental performance. We believe that this approach holds great promise for making it easier to meet, and surpass, Rhode Island's environmental regulations and worker health and safety standards.

This workbook provides you with the information you need to understand and meet your environmental and occupational health obligations. It is based upon the most up-to-date regulatory standards, industry practices, and original findings of DEM and University of Rhode Island Center for Pollution Prevention researchers. One of the greatest benefits to you and the environment will come from preventing pollution, typically from product substitution and other tips which are described in this workbook. You will find that pollution prevention may significantly reduce your regulatory burden, and at the same time, save you money.

Thank you for your cooperation and good luck with this new approach to protecting the environment and improving worker health and safety.

Jan Reitsma, DEM Director
November 2002

Table of Contents



Acknowledgements	ii
Directors Message	iv
1.0 Overview	1
1.1 Who is Subject to Self-Certification?	2
1.2 What Does Participation in the Self-Certification Program Entitle Your Shop To?	3
1.3 Pollution Prevention – The First Step to Compliance	4
1.4 Key Environmental Concepts	5
2.0 Top Ten Tips for Environmental Success	6
3.0 Pollution Prevention (P2): The Quickest and Easiest Way to Save Money and Ensure Compliance	10
3.1 Storage of New and Used Materials	10
3.2 Methylene Chloride used in Paint Stripping Operations	11
3.3 Solvent Recycling	12
3.4 Solvent-less Cleanup	12
3.5 Electrical Conservation	13
3.6 Train Workers to Minimize Overspray	13
3.7 More Simple Measures	14
3.8 Paintless Dent Removal	14
3.9 Waterborne Primers and Basecoats	15
3.10 Compliance, Compliance, Compliance	15
4.0 Hazardous Waste Management	16
4.1 Waste Identification	16
4.2 Hazardous Waste Accumulation/Storage Time Limit	20
4.3 Hazardous Waste Storage – Containers	22
4.4 Hazardous Waste Storage – Containment	26
4.5 Container Labeling Requirements	29
4.6 Offering Hazardous Waste for Shipment – Licensed Transporters, EPA ID Numbers and Waste Manifests	30
4.7 Emergency Preparedness and Prevention/Contingency Plans	33
4.8 Annual Personnel Training	35
4.9 Recordkeeping and Reporting	36
5.0 Air Pollution Control	38
5.1 Surface Preparation – Fugitive Dust	38
5.2 Surface Preparation/Cleanup – Control of Volatile Organic Compounds (VOCs) and Toxic Air Contaminants	39
5.2.1 Required Compliant Coatings	40

5.2.2 Required Equipment	41
5.2.3 Recordkeeping	42
5.2.4 Permitting Thresholds for Toxic Air Contaminants	42
5.3 Odors	44
6.0 Water Pollution Control	46
6.1 Best Management Practices to Minimize Water Pollution	46
6.2 Floor Drains – Where does your wastewater flow?	47
6.2.1 Drywells & Other Subsurface Leaching Systems	47
6.2.2 I SDS or Septic Systems	48
6.2.3 Sewer Discharges	48
6.2.4 Discharges to Public Stormwater Collection Lines	48
6.2.5 Wastewater is collected in a tank with no discharge	49
6.2.6 Direct Discharge to a Waterway	49
6.2.7 Wastewater runs off site lot to street storm drains	49
6.2.8 Wastewater is not collected and just infiltrates the ground	49
6.3 Stormwater	50
6.4 What to expect from a sewer discharge permit	50
7.0 Health and Safety in the Auto Body Shop	52
7.1 Workplace Health & Safety Consultation	52
7.2 The Job Safety and Health Protection Poster	54
7.3 The OSHA 300 Log	55
7.4 The Hazard Communication Standard	55
7.4.1 The five major components of the Hazard Communication Standard	55
7.4.2 Material Safety Data Sheets	56
7.4.3 Container Labeling	57
7.4.4 Written Hazard Communication Program	57
7.4.5 Employee Training	58
7.4.6 Materials Inventory	59
7.5 Personal Protective Equipment (PPE)	60
7.5.1 Vehicle Cleaning and Washing	61
7.5.2 Structural Body Repair	62
7.5.3 Cutting, Welding and Dismantling of Vehicles	62
7.5.4 Sanding, Grinding and Chemical Paint Stripping	63
7.5.5 Paint Mixing and Post Repair Clean-up	65
7.5.6 Spray Painting (Priming, Coating, Clearcoating)	66
7.6 Respiratory Protection Program	66
7.6.1 Fit Testing	69
7.6.2 Use of Respirators	70
7.6.3 Training	70
7.6.4 Program Evaluation	71
7.6.5 Documentation and Recordkeeping	71
7.6.6 Work Area Surveillance	72
7.6.7 Medical Evaluations	72

7.6.8 Periodic Evaluation	72
7.6.9 Inspection and Maintenance	73
7.6.10 Cleaning, Sanitizing and Storage	73
7.6.11 Voluntary Use of Filtering Facepieces (Dust Masks)	74
7.7 Lockout/Tagout	74
7.7.1 Responsibility	75
7.7.2 Basic rules for using lockout or tagout system procedures	76
7.7.3 Periodic Inspection	76
7.8 Emergency Action Plan	77
 Appendix A –Hazardous Waste Contingency Plan Guidance	 81
Appendix B –Sample Written Hazard Communication Program	86
Appendix C –Sample Personal Protective Equipment Program	90
Appendix D –Sample Respiratory Protection Program	94
Appendix E –Additional References	101

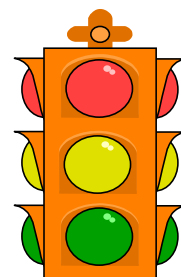
List of Tables

Table 3-1: Pollution Prevention Measures for Autobody Shops	11
Table 4-1: Hazardous Waste Identification Assistance	18
Table 5-1: Emission Limitations for Autobody Coatings	40
Table 5-2: Minimum Quantities of Air Toxics	43

List of Figures

Figure 4-1: Summary of Hazardous Waste Storage Requirements	28
Figure 4-2: Hazardous Waste Manifests	32
Figure 5-1: Summary of Air Pollution Control Requirements	45
Figure 6-1: Potential Wastewater Discharge Points	47

Section 1.0 – Overview



In order to improve environmental protection at less cost to both government and business, autobody repair facilities are now able to self-certify to the Department of Environmental Management (DEM) that they are complying with the environmental and occupational health protection requirements which apply to their business. This new, common sense approach to regulation holds great promise for making it easier for the autobody repair industry to meet –and surpass– Rhode Island’s environmental and occupational health regulations. This workbook provides the information needed to help you understand and comply with state and federal environmental and occupational health and safety regulations. It was developed in conjunction with a group of industry representatives and contains the materials needed to complete and submit the accompanying self-certification checklist. The package has two parts:

1. **Environmental and Occupational Health Compliance Certification Workbook For Autobody Repair Facilities (This Workbook):** This workbook explains the environmental protection standards that apply to your facility, and how to make sure you are complying with them. The workbook is designed to be used in conjunction with the accompanying self-certification checklist and can also be used as a reference for your facility. The workbook also provides information regarding best management practices and pollution prevention techniques which can help your facility minimize human health risks and environmental impacts while saving money.
2. **Biennial Self-Certification Checklist and Accompanying Forms Booklet:** This checklist requires facility information (facility name, address, owner, etc.), and contains a series of compliance questions, which generally require “yes” or “no” answers about whether or not your facility is following the applicable environmental and occupational health and safety requirements. The checklist ends with a certification statement which must be signed by the facility owner. Two additional forms are provided as follows:
 - **2003 Non-Applicability Statement:** This statement is to be submitted only if you are not required to self-certify. See Section 1.1 of the workbook to determine if you are eligible to file a Non-Applicability Statement. If you do not have to self-certify, then complete this form and submit it to DEM.

- **Return to Compliance Plan:** Complete the Return to Compliance Plan if your facility is not in compliance with a particular checklist item at the time of certification. The facility must detail its plans to address the particular items to bring them back into conformance with environmental, health and safety regulations within a specified period of time.

The following presentation and additional autobody information regarding the certification program is available at:

www.state.ri.us/dem/programs/benviron/assist/abdycert/abdycert.htm

- **Pollution Prevention in the Autobody Shop Powerpoint Presentation:** This presentation, produced by DEM's Office of Technical and Customer Assistance, is intended to be used as training tool for instructors and autobody shops to complement the "Health and Safety" and "Pollution Prevention" sections of this workbook. It can be obtained through the above internet address or by calling OTCA at (401) 222-6822.

1.1 Who is Subject to Self-Certification?

Participation in the program is voluntary. However, any facility with operations involving collision repair; vehicle painting, paint stripping or sanding; body work; antique restoration; or student training in any of the aforementioned areas should consider participating in the Self-Certification Program to take advantage of the incentives detailed in Section 1.2. If a painting operation is included as part of a new or used car dealership or general auto repair shop, it is also considered a refinishing operation in the Self-Certification Program. All facilities that are licensed by the Department of Business Regulation as an autobody or collision repair facility are eligible to participate in the Self-Certification Program. [Note: facilities involved in autobody or collision repair must be licensed by the Department of Business Regulation.]

All autobody or collision repair facilities operating in the State of Rhode Island must comply with the standards in this workbook whether or not they self-certify. Complete and return the certification checklist as instructed if you intend to participate in the program.

If your facility does not meet the description of an autobody or collision repair facility (see description above), or if this package has been sent to you in

error, please complete, sign and return to DEM the **2003 Non-Applicability Statement** located in the Checklist and Forms Booklet. If you have any questions regarding the status of your shop, please call us at 222-6822.

1.2 What Does Participation in the Self-Certification Program Entitle Your Shop To?

DEM: Compliance with environmental regulations is a requirement of all automotive refinishing facilities. Participation in the Self-Certification Program is voluntary, but entitles your shop to the following incentives:

- reduced inspection priority,
- the ability to correct violations without gravity-based penalties,
- a comprehensive evaluation of your shop's compliance status, making you better prepared for a random inspection,
- free technical assistance from DEM's Office of Technical and Customer Assistance.

OSHA: Compliance with occupational health and safety laws is a requirement of all automotive refinishing facilities. Participation in the Self-Certification Program is voluntary, but entitles your shop to the following incentives:

- a comprehensive evaluation of your shop's compliance status,
- free technical assistance from RI Dept. of Health's OSHA Consultative Services.

Note: Participation in the Self-Certification Program does not guarantee that your shop will not be subject to a random inspection, or an inspection prompted by an employee or neighbor complaint. Both state and federal environmental and occupational health and safety agencies have the authority to perform such inspections. These inspections can result in enforcement actions against your facility. Participation in this program will identify deficiencies and prepare your facility in the event of an inspection. Keep copies of your checklists to assist you in demonstrating compliance with applicable state and federal regulations.

1.3 Pollution Prevention – The First Step to Compliance

P2

The first step on the road to environmental compliance is to look for opportunities to use fewer hazardous materials and to generate less waste, thus stopping pollution at its source. Why manage wastes when you can eliminate them? Pollution prevention techniques can help you to reduce your compliance burdens, make your workplace cleaner and safer, increase your competitiveness and save you money. This section outlines some simple steps you can take to prevent pollution. After reviewing these steps to reduce your use of toxic materials and generation of wastes as much as possible, move along in the workbook to find out how to properly manage your remaining wastes, air emissions, and wastewater discharges. If you need help with implementing pollution prevention techniques/technologies, feel free to contact DEM's Office of Technical and Customer Assistance (OTCA) at 222-6822.

All Autobody Shops Should:

- Make one person solely responsible for chemical purchases and inventory control. Consider environmental and safety requirements in purchase decisions.
- Eliminate the use of Methylene Chloride-based paint strippers.
- Consider purchasing a solvent recycler to allow your shop to reuse thinners and gun cleaners.
- Use an enclosed spray gun cleaner or comparable gun cleaning method to minimize air emissions when cleaning spray guns as required by State regulation.
- Use low volatile organic compound (VOC) coatings and cleaners as required by state and federal regulations.
- Examine your use of materials by operation. Are there new technologies that can replace your existing process and reduce toxics or waste? You may also be able to save money or provide a new customer service.



- Conduct an annual inventory to reduce the number of chemical products used in the shop.
- Track chemical use and wastes to identify opportunities to reduce waste and use less toxic alternatives.
- Implement best management practices for the storage and handling of stock and materials. Spoiled and obsolete materials should be removed. Use first-in, first-out management practices.
- Clean containers as much as practical. Recycle the used containers or return them to the supplier or a drum reconditioner.
- Give employees simple incentives to keep their work areas clean and minimize chemical use. Promote good housekeeping.

1.4 Key Environmental Concepts

The standards contained in this workbook are designed to protect the environment from the following types of pollution:



Hazardous Waste: Hazardous waste is material you intend to discard that is hazardous to public health and the environment when not handled properly. Examples of hazardous wastes commonly found in autobody shops include: solvent-based waste paints, used solvent thinners and gun cleaners, spent chemical paint strippers, and stripped paint waste. Materials which are *potentially* hazardous wastes in your shop include waste automotive fluids, oils, etc., and paint booth filters. Hazardous wastes have special storage, handling, labeling, emergency planning, and training requirements which are detailed in Section 4 of the workbook.

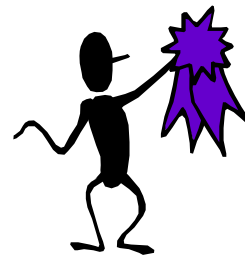
Air Emissions: Air emissions occur when air contaminants are discharged to the surrounding environment. An air contaminant is any substance that has been released to air including sanding dusts, paint solvents, mists, odors, smoke, or combinations of these. One particular type of air contaminant common to autobody shops are volatile organic compounds (VOCs) which are generated when solvents, such as thinners and paints, evaporate into the air. VOCs play a major role in the

formation of ground-level ozone (otherwise known as “smog”). Autobody shop responsibilities regarding air emissions are explained in Section 5.

Industrial Wastewater Discharge: Industrial wastewater is any wastewater resulting from an industrial or manufacturing process, trade or business. Discharge is the release of the industrial wastewater into the waters of the State through pipes, sewers, or other means. For autobody shops, industrial wastewater is generated from car washing, floor washing, and general cleanup. If your shop is connected to the sewer system, wastewater discharge requires permitting through a local sewer authority. Wastewater discharge to the subsurface (underground through a drywell, galley, or other means) requires permitting through DEM's Underground Injection Control (UIC) Program. Wastewater discharge that goes directly to surface waters of the state requires permitting through DEM's Rhode Island Pollutant Discharge Elimination System, or “RI PDES” Program. These issues are explained in greater detail in Section 6.

Worker Health and Safety: The U.S. Occupational Safety and Health Administration (OSHA) regulates health and safety in the workplace. Issues such as chemical exposure, hazard communication, respiratory protection, lockout/tagout, hearing protection, personal protective equipment, forklift operation, confined space entry, and emergency action plans are all strictly regulated by OSHA. The Rhode Island Department of Health (DOH) provides compliance assistance in these areas. Should you need help, contact the OSHA consultative branch at 222-2438. These OSHA issues are discussed in Section 7.

Section 2.0 – Top Ten Tips for Environmental Success



1. **Pollution Prevention – Your first step to compliance.** P2 techniques should be used wherever possible to reduce wastes and emissions. Look for opportunities in your shop to employ pollution prevention techniques. (Sections 1.3 and 3.0 provide some practical guidance). If you need help with identifying or implementing pollution prevention techniques/technologies, feel free to contact OTCA at 222-6822.

2. **Actively and Aggressively Manage your Wastes.** Hazardous waste should never be handled like regular trash, nor should it be disposed of in the regular trash. As a generator, you are responsible for the waste's identification and disposal. Accumulate these wastes in appropriate containers for proper disposal. There are also storage, labeling, emergency planning, and employee training requirements which are described in Section 4. Also, non-hazardous materials such as cardboard, aluminum, paper, and scrap metal are recyclable. Feel free to contact OTCA for assistance with material identification, disposal, and recycling.
3. **Shop Towels and Waste Disposal.** You should reduce the amount of paints and solvents on your shop towels as much as possible. Shop towels *saturated* (dripping) with paints or solvents must be handled as hazardous waste. Towels with only minor contamination must be handled as hazardous waste *unless* they are sent off-site for laundering at a properly licensed commercial laundry.
4. **Hazardous Waste Management – To Manage is to Control.** Nothing can get you into trouble faster than a disorganized hazardous waste storage area. Label drums and keep them clean and closed. Maintain aisle space, post warning signs, and keep hazardous waste separated from non-hazardous waste and virgin materials. Storage areas have specific requirements regarding 90 day storage time limits, condition of containers, secondary containment and storage area inspection. These requirements can be found in Section 4.
5. **Prevent Trouble – Plan for Emergencies and Train Employees.** You must have emergency response procedures and equipment in place, along with a written plan, to ensure employee safety. Post emergency phone numbers at each phone near the work areas. Designate an emergency coordinator and instruct employees on whom to contact and what to do during a spill or evacuation. Employees that handle or are otherwise involved with hazardous waste must be trained (annually) in the proper procedures for safe handling of these materials. Further information can be found in Section 4.

6. **Records, Records, Records.** You must keep your material purchase or usage records, hazardous waste manifests, material safety data sheets (MSDSs), and other legally required records on file. The regulations generally require that you keep these records for at least three years, but it is good management practice to keep these records indefinitely.
7. **Solvents – Minimize or eliminate where you can.** Volatile Organic Compounds are regulated under DEM's Air Pollution Control Regulations. With regard to autobody shops, the burden to meet certain aspects of the regulation lies with the coating manufacturer, so make sure that you are using compliant coatings and cleaners. Autobody shops are also required to use spraying equipment that achieves a transfer efficiency of at least 65%. This translates to the use of High Volume/Low Pressure (HVLP) spraying equipment in autobody shops. Finally, the use of methylene chloride as a chemical paint stripper is strictly regulated. The Air Pollution Control and Occupational Health Regulations can be found in Sections 5 and 7 respectively.
8. **Know Where Your Wastewater Goes.** Wastewater from industrial processes such as auto refinishing are regulated according to work activity/area and discharge point. Should your facility have floor drains that collect wastewater from car washing, you should know where this wastewater goes. If washing occurs in the parking lot or other outside area, you should also know where it goes. (Does it enter a storm drain?) If your shop is connected to the sewer system, wastewater discharge requires permitting through a local sewer authority. Wastewater discharge to the subsurface (underground through a drywell, galley, or other means) requires permitting through DEM's Underground Injection Control (UIC) Program. Wastewater discharge that goes directly to surface waters of the state requires permitting through DEM's RIPDES Program. These issues are explained in greater detail in Section 6.
9. **Minimize Solvent, Isocyanate and Dust Exposure – Use Personal Protective Equipment.** Research has shown that paint solvents and isocyanates are dangerous to human health. Also, sanding dust contains toxic metals such as lead and chromium. High exposure to solvents, isocyanates or metals can cause adverse health effects. Most shops use disc sanders to remove paint/body

filler compound from cars which creates dust that may be ingested or inhaled. Also, chances are good that, unless the sander has a dust collection device, dust generated from the sander could travel beyond the property of your shop. This would be regulated by DEM's Air Pollution Control Regulations. Your workers must be properly protected when sanding and painting.

10. **Internal Review – Continual Improvement.** Good environmental, health and safety management does not end with a one-time review of your shop. Periodic reviews of your chemical usage can identify trends and problems which can help you to minimize wastes – even if you are a small business. Regular discussions with employees that review these issues can help begin a culture of environmental, health and safety awareness which can save you time and money and protect you from liability and possible fines down the road. Consider providing incentives for employees who minimize chemical use and use personal protective equipment while doing a quality auto refinishing job.

Section 3.0 — Pollution Prevention (P2): The Quickest and Easiest Way to Save Money and Ensure Compliance

Pollution prevention (P2) is the United States Environmental Protection Agency's (USEPA) and the Rhode Island Department of Environmental Management's (DEM) preferred method for reducing environmental and human health risks. More specifically, P2 is the use of materials, processes, or practices that reduce or eliminate the creation of pollutants at their source. It includes reduction in the use of hazardous materials, and energy and water conservation. Literally hundreds of industry case studies from across the U.S. and abroad have shown that companies can increase productivity, save money and reduce workplace and environmental health risks by adopting a P2 approach in their facilities.

In the autobody industry, pollution prevention practices generally fall into one of three categories: product changes (such as raw material substitution), improved operating practices, and technology changes (process or equipment modifications, for example). Some of the more obvious pollution prevention techniques that are required by DEM regulation include the use of HVLP (High Volume Low Pressure) spray guns, enclosed spray gun cleaners (or equivalent devices), and low VOC (Volatile Organic Compound) coatings. Each of these P2 methods result in decreased raw material usage (saving \$\$) and/or reductions in the release of pollutants to the environment. Table 3-1 lists additional measures that will help you reduce your regulatory burden, maintain compliance, and save money. The Rhode Island Department of Environmental Management **strongly** encourages you to investigate the pollution prevention measures listed in this section and to apply common sense P2 practices where feasible. The following points highlight some of the measures listed in Table 3-1.

3.1 Storage of New and Used Materials

Be sure to keep all containers closed to prevent the release of chemical vapors. Section 30.4.3 of the Rhode Island Air Pollution Control Regulations requires that new and used solvents and paints, as well sludge and other waste fluids/materials, must be stored in closed containers.

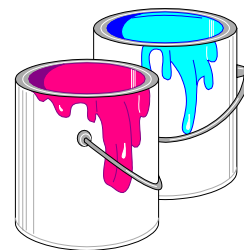


Table 3-1: Pollution Prevention Measures for Autobody Shops

Product Changes	Improved Operating Practices	Technology Changes
<i>Use:</i>		<i>Use:</i>
Low VOC coatings	Keep solvent containers closed	HVLP spray guns
Water-based/low VOC vehicle cleaners	Protect raw materials from damage	Enclosed spray gun cleaners
Eliminate methylene chloride paint strippers	Supervise and limit access to raw material dispensing	Computerized scale for paint mixing
Waterborne primers & basecoats	Train workers to minimize overspray	Resistant spot welding in place of conventional welding
Yellow, orange, and red tints that do not contain lead or lead chromates	Use environmentally-friendly products	Paintless dent removal in place of conventional refinishing where possible
Water-based hand cleaners	Mix paints in-house	A solvent recycling system
Tinted primers to reduce basecoat usage	Use first-in, first-out inventory system	A compactor to compress cardboard for recycling
Cadmium-free solder	Segregate waste thinners	
	Reuse/return excess product to supplier	
	Give excess paint to other companies	
	Use commercial launderer for shop rag cleaning/reuse	

3.2 Methylene Chloride used in Paint Stripping Operations

In 1998, Rhode Island DEM surveyed over 350 body shops and found that 1 out of 5 shops still use methylene chloride as a paint stripper. Methylene chloride is a listed toxic air contaminant in Rhode Island. In addition, methylene chloride paint stripping waste must be managed as a state and federally regulated hazardous waste, thereby increasing your regulatory costs and compliance burden. Further, methylene chloride is regulated by the U.S. Occupational Safety and Health Administration (OSHA) for its ability to cause cancer and worsen heart problems.

The best way to avoid regulatory burdens associated with using methylene chloride is to **eliminate it from your shop altogether**. Instead, consider stripping paint from cars using a disc sander/grinder that has a dust-capturing capability associated with it or use an alternative stripper without methylene chloride (Note, however, that alternative chemical strippers may be flammable and/or toxic).

3.3 Solvent Recycling

If your company generates large quantities of spent spray gun cleaning solvent, then you may be losing \$\$ by not using a solvent recycling system. For example, if your shop were to generate 15 gallons per week (735 gal./yr) of waste solvent with a per gallon purchase and disposal cost of \$5 and \$9, respectively, then a \$3,700 solvent recycling system (with a 90% recovery rate) would save you more than \$5,000 in the 1st year alone. OTCA has helped many body shops evaluate their solvent use operations in an effort to save money and help the environment all at the same time. If you would like assistance in locating equipment manufacturers or in your purchasing decision, please call us at 222-6822.

3.4 Solvent-less Cleanup

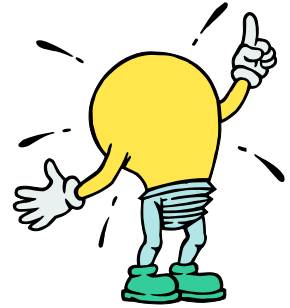
Do not use solvents to clean your hands or skin. Solvents can penetrate through your skin, enter your blood stream, and be distributed to organ systems throughout your body. Instead use a commercial soap solution made for paint cleanup purposes.



Also, avoid solvent emissions by eliminating solvents from spray booth cleanup operations. Instead, use disposable masking over interior paint booth surfaces in place of solvent-based cleaners for removing paint overspray/residue. Such masking materials include plastic and paper sheeting or peel/tacky coats. If this is not practical for your shop, scraping, along with the use of water-based or low VOC cleaners, is still better than using highly concentrated solvent-based cleaners.

3.5 Electrical Conservation

Your shop can help to reduce air pollution by simply shutting off lights and electrical devices that are not being used. Such seemingly-small actions will help to save on electricity produced back at the power plant (less energy generated = less air pollution emissions generated), as well as saving your shop money on its electric utility bill.



Using skylights and energy-efficient light bulbs are other easy ways to help your shop save money and reduce air pollution. Other energy saving strategies include:

- Building tune-ups (ex., calibrating thermostats, lighting upgrades)
- Load reductions (insulating roofs, windows and reducing drafts)
- Fan system upgrades
- Upgrading heating and cooling systems

Whenever it is possible for your shop to do so, use electrical products that display EPA's Energy Star logo on them. This logo identifies products that operate more efficiently by using less energy.



3.6 Train Workers to Minimize Overspray

Make sure that your painters are fully trained in proper spraying techniques so as to minimize overspray. Paint overspray results in wasted product (\$\$) and emissions of air pollutants to the workplace and, ultimately, to the outdoor environment.

The William M. Davies, Jr. Career and Technical High School serves as a regional training center for autobody professionals in the new spray paint technology known as Laser Touch. Laser Touch was developed in 1999 at the university-based Iowa Waste Reduction Center as part of the Center's award-winning Spray Technique Analysis and Research (STAR) Training Program. The technology consists of a battery-powered targeting device that can be attached to almost any liquid coating spray gun. Laser Touch uses two adjustable laser beams

to help the spray gun operator target the correct spray pattern while maintaining the correct distance and angle from the part being painted. At the correct distance, the two laser beams converge into a single dot. If the gun is too close or too far from the part being painted, or the gun is held at an improper angle, the single dot diverges into two separate laser beams, alerting the painter that a correction in technique is needed. Using the process increases the efficiency of applying the paint accurately by more than 25 percent, resulting in reduced air emissions and reduced cost! To save \$\$ by improving the technique of your painters by using this technology, contact OTCA or the William M. Davies Career and Technical School.

3.7 More Simple Measures

In addition to keeping solvent/waste containers closed when not in use, several additional cost-saving practices that require no/little capital investment are possible. These include: protecting your raw materials from damage, contamination, or exposure to the elements; supervising and controlling the dispensing of raw materials; limiting access to raw materials; applying tinted primers to reduce basecoat usage; using a commercial laundering service to clean and recycle shop rags; using a trash compactor to compress cardboard and waste paper for offsite recycling; and using a first-in first-out inventory control program. Many Rhode Island auto body shops have also adopted other more advanced measures such as mixing paints in-house or using a computerized paint mixing scale. Also, be sure to choose environmentally-friendly products, such as cadmium-free solder, whenever possible.

3.8 Paintless Dent Removal

In certain applications, paintless dent removal (PDR) can serve as a replacement for conventional refinishing, thereby eliminating potential exposure to pollutants generated during body repair and spray painting. As you may be aware, PDR is a purely mechanical process that uses special tools to restore sheet metal back to its original form by removing small dents, creases, and surface imperfections without the need for repainting. If PDR sounds right for you, call your local distributor or OTCA for more information.

3.9 Waterborne Primers and Basecoats

Quality waterborne primer and basecoat technology has arrived! Several Rhode Island and Massachusetts companies have already substituted waterborne coatings for organic solvent-based paint systems and the William M. Davies Career and Technical School now carries a complete line for training purposes. Though additional equipment (e.g., heat lamps) is needed, waterborne coating technology may be right for you. Waterborne coatings not only reduce environmental releases of regulated pollutants, but may also reduce workplace exposures. For technical information on waterborne coatings contact your local distributor or the Davies Career and Technical School. To arrange a tour of a Rhode Island facility that has made the switch, contact OTCA at 222-6822.

3.10 Compliance, Compliance, Compliance

Perhaps the single greatest thing that you can do to reduce toxic air emissions and save money is to comply with Rhode Island Air Pollution Control Regulation No. 30, "Control of Volatile Organic Compounds from Automotive Refinishing Operations." Very simply, as stated in the introduction to this section, this means that you are required by law to use 1) high volume low pressure (HVLP) spray gun technology, 2) an enclosed spray gun cleaner or equivalent technology, and 3) only low VOC compliant coatings as required by Rhode Island law. Again, you are required to keep all containers closed to prevent the release of chemical vapors.

Section 4.0 – Hazardous Waste Management

As a business owner, you must manage your hazardous wastes in a safe and environmentally responsible manner. Federal and State regulations place the burden on you, as the generator, to properly dispose of the waste. The generator has “cradle-to-grave” responsibility, i.e., you retain responsibility even when other companies handle and dispose of your waste. By choosing products that are less hazardous, and minimizing the amount that you generate, you can reduce your cradle-to-grave liability. This section describes the rules and regulations for hazardous waste management specifically as they pertain to an autobody shop.



A common misconception regarding the hazardous waste regulations involves the definition of wastes vs. raw materials. Materials that you are using or intend to use are not considered a waste, and thus are not subject to the hazardous waste regulations. (Raw materials with health/safety hazards are regulated under OSHA Hazard Communication requirements, Spill Prevention requirements, and may even be subject to local regulations or fire codes.) As such, this raw material should be stored separately and not confused with waste materials. However, materials that are expired or that you do not intend to use anymore may automatically become wastes, and must be managed as such.

4.1 Hazardous Waste Identification

The auto refinishing process generates materials that are considered hazardous wastes. Automotive refinishing wastes are determined to be hazardous wastes because:



1. They are either listed by the U.S. Environmental Protection Agency in 40 CFR 261 Subpart D (a listed waste).
2. They demonstrate a characteristic of a hazardous waste as detailed in 40 CFR 261 Subpart C (a characteristic waste). The four characteristics are ignitability, corrosivity, reactivity, and toxicity.

3. They meet the description of a Rhode Island Hazardous Waste as listed in Section 3.67 of the Rhode Island Rules and Regulations for Hazardous Waste Management. (The RI definitions are only used after the federal definitions have been checked)

Note: The RI Regulations frequently refer to the Code of Federal Regulations for Protection of Environment (40 CFR) which can be obtained free of charge through the Internet at <http://www.access.gpo.gov/nara/cfr/index.html>. 40 CFR 262 details standards applicable to generators of hazardous wastes. OTCA attempts to identify sections of both the state and federal regulations which apply to the facility and these are included with this workbook. **But, it is ultimately the generator's responsibility to read, understand, and comply with these regulations.**

As a generator, you are required to determine whether your wastes fall into any of these three categories. You can do this by using your knowledge of the process and materials, including available information like Material Safety Data Sheets (MSDSs), or by testing a representative waste sample. A licensed waste transporter, environmental lab, or OTCA can help you characterize your waste for proper disposal. If changes in your materials or process cause your waste to change, then you are required to re-evaluate it to ensure proper handling and disposal. Some transporters and disposal facilities may also require you to re-evaluate your wastes each year. You must keep records of waste analyses to confirm your identification and characterization of wastes.

At an auto refinishing facility, the following commonly-generated waste materials should be investigated for characterization as a hazardous waste:

- waste paint stripper and paint which has been stripped from vehicles,
- solvents such as waste gun cleaners and waste thinners,
- waste paint (unused or expired paint),
- sludge or "bottoms" from a solvent recycling unit (still),
- automotive fluids,
- spent filters from the spray booth.

The following table (Table 4-1) is provided to help you characterize your wastes. It also provides the proper waste codes which are required for drum labeling and for inclusion on the shipping manifest (both described in later sections).

Table 4-1: Hazardous Waste Identification Assistance

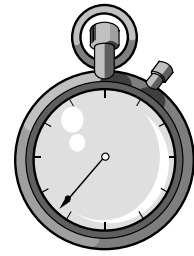
Waste	Is it Hazardous? Listed or Characteristic?	Why?	Waste Code
Waste Methylene Chloride Paint Stripper (Discarded Product)	Yes, a listed waste	The discarded material is a commercial chemical product listed for toxicity	Listed: U080
Waste Methylene Chloride Paint Sludge Stripped from Vehicles	Yes, a listed waste	The solvent blend contained, before use, ten percent or more of solvents such as methylene chloride, xylene, toluene, and acetone.	Listed: F002, F003, F005
Waste Gun Cleaning Solvent	Yes, a listed & characteristic (ignitable) waste	The solvent blend contained, before use, ten percent or more of solvents such as xylene, toluene, and acetone. The mixture also has a flash point below 140°F	Listed: F003, F005 Char: D001
Waste Paint Thinner	Yes, a listed & characteristic (ignitable) waste	The solvent blend contained, before use, ten percent or more of solvents such as xylene, toluene, and acetone. The mixture also has a flash point below 140°F	Listed: F003, F005 Char: D001
Sludge or "Bottoms" from Solvent Recycler or "Still", which Recycles Gun Cleaner or Thinner	Yes, a listed & possibly characteristic (ignitable) waste	Still bottoms from a still where the solvent blend contained, before use, ten percent or more of solvents such as xylene, toluene, and acetone. The mixture <i>may</i> also have a flash point below 140° F	Listed: F003, F005 Char: D001
Waste or Expired oil-(solvent-) Based Paint	Yes, a characteristic waste, and it <i>may</i> be a RI Haz. Waste	Waste paints will exhibit the characteristic of ignitability as defined in the Federal Regulations if they have a flash point below 140° F, and would carry the waste code D001. If waste paints exhibit a flash point between 73° F and 200° F, they would be characterized as a Slightly Flammable Waste under RI Regs., and would carry the waste code R003.	D001 or R003
Waste Paint Booth Filters & Masking tape/paper	It <i>may</i> be a characteristic waste	Paint booth filters should be tested to determine whether they contain trace metals or organics which would cause it to fail the toxicity characteristic.	Waste code depends on the trace materials found through testing
Waste Sanding Dust	Typically not a haz. Waste. Paint dust from older vehicles, however, may be a characteristic hazardous waste.	Facility owners may want to periodically test sanding dust to determine whether it contains metals that would cause it to fail the toxicity characteristic.	Waste code depends on the metals found through testing

Table 4-1 (continued): Hazardous Waste Identification Assistance

Waste	Is it Hazardous? Listed or Characteristic?	Why?	Waste Code
Waste Motor Oil	Yes, it may be a characteristic waste, and it may be a RI Haz. Waste	Waste oil may have levels of lead and/or benzene which fails the toxicity characteristic. Generally it must be handled as a RI Haz. Waste unless it contains lead. Generators have the option of handling waste oil as a non-hazardous waste if they retain test data on RCRA 8 metals and total halogens.	Waste code depends on the trace materials found through testing, or will be R010 if defined as a RI Haz. Waste
Waste Anti-Freeze	No	It does not meet any of the definitions, but make sure that it is not mixed with other automotive fluids. (Please note that anti-freeze is poisonous. Spilled anti-freeze is an attractive nuisance to kids and animals which should be avoided.)	
Absorbent Materials, such as Speedi-Dry, Contaminated with Haz. Waste	They could be hazardous.	Absorbents soaked with materials that are considered hazardous waste also are hazardous waste.	Waste code depends on materials absorbed
Shop Towels/Rags Contaminated with Haz. Waste	They could be hazardous.	Absorbents soaked with materials that are considered hazardous waste also are hazardous waste. But, in the case of rags/towels, if they are not soaked (dripping) and they meet the following conditions, they are not considered hazardous waste: 1.) They must be laundered at an appropriate facility, 2.) They must be stored in containers away from a source of ignition, 3.) No other waste can be mixed with rags.	Waste code depends on materials absorbed
Fluorescent and Mercury-Bearing Light Bulbs	Universal Waste	Bulbs can fail the toxicity characteristic for mercury, but they can be handled as a universal waste. ¹	Not needed
PCB-Containing Light Ballasts	Universal Waste	Ballasts can fail the toxicity characteristic, but they can be handled as a universal waste. ¹	Not needed
Car Batteries	Universal Waste	Batteries are corrosive, but they can be handled as a universal waste. ¹	Not needed
Tires	No	Tires are not considered hazardous waste, but no more than 30 tires can be stored on-site at any time.	Not needed

¹ Universal wastes are not fully regulated as hazardous waste. Universal waste can be accumulated with no storage time limits provided that handler accumulates no more than 2200 pounds of universal waste. Containers must be properly labeled with the words "Universal Waste," the accumulation start date, and identification of the contents. These wastes must be sent to a facility equipped to handle Universal Waste.

4.2 Hazardous Waste Accumulation / Storage Time Limit



As an autobody shop owner, you have three options when accumulating hazardous waste at your site: satellite accumulation, 90-day storage, or both. Each requires the generator to properly identify, label and ship the waste according to the provisions detailed in the following sections of the workbook. However, there are significantly different requirements for storage area inspections, secondary containment, contingency (emergency) planning, and personnel training. You should determine the best accumulation method for your facility based on your rate of waste generation and ability to comply with the requirements described below.

90-Day Storage Requirements

A generator may accumulate hazardous waste on-site for 90 days or in satellite accumulation areas with an unlimited time limit according to the provisions listed below provided that the waste is placed in containers and these containers are managed according to 40 CFR 265 Subpart I - Use and Management of Containers. Subpart I lists seven criteria for proper container management and these are detailed in Section 4.3 - Hazardous Waste Storage - Containers. As an autobody shop, you can create a "90-day accumulation storage area" where full 55-gallon drums of waste can be stored. These drums must be shipped off-site using a licensed waste transporter within 90 days. The existence of a 90-day storage area requires that the generator comply with the requirements of the regulations described in Section 4.4 - Hazardous Waste Storage - Containment, Section 4.5 Container Labeling Requirements, Section 4.6 - Offering Waste for Shipment, Section 4.7 - Emergency Preparedness and Prevention/Contingency Plans, Section 4.8 - Annual Personnel Training, and Section 4.9 - Recordkeeping and Reporting. Therefore, if you choose to use a 90-day storage area, be sure to read all of Section 4 of this workbook, as the requirements for compliance are more extensive than those for satellite accumulation.

"Satellite" or Workstation Accumulation

Your shop may also use satellite accumulation of wastes. The State and Federal Hazardous Waste Regulations (specifically Rule 5.02(A) and 40 CFR 262.34(c)(1)) allow a generator to accumulate only up to 55 gallons of hazardous waste for each waste stream with no storage time limit provided that the container is:

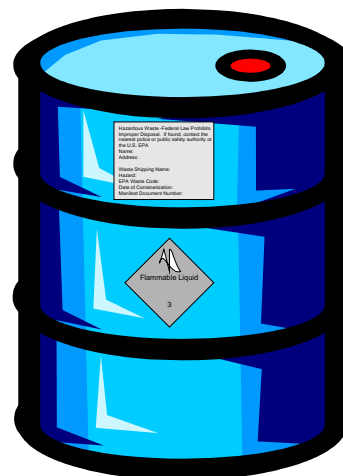
1. At or near the point of generation where the waste initially accumulates;
2. Under control of the operator of the process generating the waste;
3. In good condition;
4. Kept closed except when adding or removing waste;
5. Handled or stored so as not to cause a rupture or leak;
6. Arranged to accommodate the storage of chemically incompatible wastes;
7. Labeled with the words *Hazardous Waste*, and other words that identify the contents of the container.

When filled, the generator must either:

1. Move the 55-gallon container to a designated 90-day hazardous waste storage area within 3 days. The full container then incurs the 90-day time limit for proper disposition (i.e. the 90-day "clock" begins ticking) and must also meet the complete labeling requirements described in Section 4.5 – Container Labeling. Also, the generator must comply with all the requirements detailed in Section 4 of this workbook.
2. If you generate waste at such a small rate that satellite accumulation alone will be adequate for your needs, and you do not have a 90-day storage area in your facility, you are only subject to the requirements described in Section 4.6 – Offering Waste for Shipment and Section 4.9 - Recordkeeping and Reporting. However, your satellite accumulation containers must never be allowed to exceed 55 gallons of each waste stream. Any excess must be put in a 90-day storage area which would make your shop immediately subject to all the requirements of Section 4. If you choose to use only satellite accumulation, you must keep a close eye on the amount of waste in the containers, and you should consider arranging for waste shipment prior to reaching 55 gallons.

4.3 Hazardous Waste Storage - Containers

As described in the previous section, an autobody shop may accumulate hazardous waste on-site for 90 days provided that the waste is placed in containers and these containers are managed according to 40 CFR 265 Subpart I - Use and Management of Containers. Subpart I lists seven criteria for proper container management. These criteria are listed below with specific references to actions that shops can take to remain in compliance.



1. **Condition of containers.** If a container holding hazardous waste is not in good condition, or if it begins to leak, the owner or operator must transfer the hazardous waste from this container to a container that is in good condition, or manage the waste in some other way that complies with the requirements of this part.

Autobody shops should review the condition of their containers and ensure that the facility and employees are capable of containing a leak. Spill kits are readily available and should be considered. Salvage drums (drums which can be used to house an entire leaking drum) are an additional safety feature to consider for your site.

2. **Compatibility of waste with container.** The owner or operator must use a container made of or lined with materials which will not react with, and are otherwise compatible with, the hazardous waste to be stored, so that the ability of the container to contain the waste is not impaired.

Steel and plastic drums are generally found in autobody shops. Plastic drums are not compatible with solvents found in paints, thinners, gun cleaners, and strippers, so make sure that you are using steel drums approved by the U.S. Department of Transportation (DOT) for these fluids. Also, since these fluids are ignitable, you should be sure these drums are electrically grounded.

3. **Management of containers.** (a) A container holding hazardous waste must always be closed during storage, except when it is necessary to add or remove waste. (b) A container holding hazardous waste must not be opened, handled, or stored in a manner which may rupture the container or cause it to leak.

Facilities should ensure that containers are closed except when it is necessary to add or remove waste. Items such as funnels with lids, or simply securing the drum cap (bung), etc. can be used. Consider posting instructions in the area.

Also, drums of material are sometimes observed stored in areas outside the facility or in far corners of the property. Outdoor storage is generally not recommended. Autobody shops should consider moving containers inside. If left outdoors, shops need to protect the storage area from the movement of cars/trucks within the yard. The base of the storage area must also be impervious (no floor drains of any kind) and bermed (see Section 4.4). A storage shed or a fenced and covered area should be considered. Commercially available hazardous waste storage lockers are another option.

4. **Inspections.** The owner or operator must inspect areas where containers are stored, at least weekly, looking for leaks and for deterioration caused by corrosion or other factors. [Comment: See § 265.171 for remedial action required if deterioration or leaks are detected.]

Autobody shops must perform a weekly inspection of the storage area looking for leaks or deterioration of hazardous waste containers. This program must be documented. Consider hanging a clipboard on the wall with the checklist and inspection log. Included on the following page is a checklist of items that may be used while performing the inspection. Record this inspection in an inspection log and keep these records for at least three (3) years from the date of inspection.

Hazardous Waste Storage Area Inspection Checklist

Weekly Inspection Checklist and Record for _____ (shop name)

Name/Title of Inspector: _____ Date and Time of Inspection: _____

Area(s) Inspected: _____ Number of Full Containers: _____

Are All Containers Closed: _____

Condition of Containers: _____

(Do containers show signs of leakage? Is there deterioration due to rust? Have containers been damaged?)

Condition/Integrity of Containment Area: _____

(Will the area effectively contain a spill or leakage? Have berms or other containment device deteriorated or been damaged?)

Is there sufficient aisle space between rows of drums? _____

(At least three feet.)

Are ground-wires in place for ignitable wastes? _____

(Note condition of wires as well.)

Is there evidence of spilled material? _____

If there was a spill, list remedial action taken: _____

(Example: Spill was cleaned and leaking drum was replaced.)

Are drum labeling requirements satisfied? _____

(Each container in the hazardous waste storage area must be labeled with the following information.)

EPA Marking

HAZARDOUS WASTE -Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency.

The Generator's Name and Address: _____

Generic Waste Shipping Name: _____

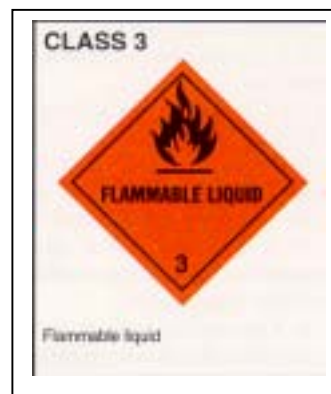
Hazard: _____

EPA Waste Code: _____

Date of Containerization: _____

Manifest Document Number: _____

DOT Hazard Label



Additional remarks or actions to be taken: _____

Record this inspection in an inspection log and keep these records for at least three (3) years from the date of inspection.

5. **Special requirements for ignitable or reactive waste.** Containers holding ignitable or reactive waste must be located at least 50 feet from the facility's property line.

a. General requirements for ignitable, reactive, or incompatible wastes. (a) The owner or operator must take precautions to prevent accidental ignition or reaction of ignitable or reactive waste. This waste must be separated and protected from sources of ignition or reaction including but not limited to: Open flames, smoking, cutting and welding, hot surfaces, frictional heat, sparks (static, electrical, or mechanical), spontaneous ignition (e.g., from heat-producing chemical reactions), and radiant heat. While ignitable or reactive waste is being handled, the owner or operator must confine smoking and open flame to specially designated locations. "No Smoking" signs must be conspicuously placed wherever there is a hazard from ignitable or reactive waste.

Autobody shops generate ignitable waste and thus should locate the 90-day storage area to comply with the above requirements. Note that the RI definition of ignitables is more stringent than the federal definition, (Flash point of 200 F vs. 140 F.) Autobody shops should separate the storage area from open flames, sparks, and other sources of ignition. Shops should also post "No Smoking" signs in the storage area. Drums containing ignitable wastes must also be electrically grounded.

6. **Special requirements for incompatible wastes.** (a) Incompatible wastes, or incompatible wastes and materials, must not be placed in the same container, unless § 265.17(b) is complied with. (b) Hazardous waste must not be placed in an unwashed container that previously held an incompatible waste or material, unless § 265.17(b) is complied with. (c) A storage container holding a hazardous waste that is incompatible with any waste or other materials stored nearby in other containers, piles, open tanks, or surface impoundments must be separated from the other materials or protected from them by means of a dike, berm, wall, or other device. [Comment: The purpose of this is to prevent fires, explosions, gaseous emissions, leaching, or other discharge of hazardous waste or hazardous waste constituents which could result from the mixing of incompatible wastes or materials if containers break or leak.]

§ 265.17 General requirements for ignitable, reactive, or incompatible wastes. (b) Where specifically required by other sections of this part, the treatment, storage, or disposal of ignitable or reactive waste, and the mixture or commingling of incompatible wastes, or incompatible wastes and materials, must be conducted so that it does not: (1) Generate extreme heat or pressure, fire or explosion, or violent reaction; (2) Produce uncontrolled toxic mists, fumes, dusts, or gases in sufficient quantities to threaten human health; (3) Produce uncontrolled flammable fumes or gases in sufficient quantities to pose a risk of fire or explosions; (4) Damage the

structural integrity of the device or facility containing the waste; or (5) Through other like means threaten human health or the environment.

Potentially incompatible materials at autobody shops are car batteries and ignitables. They should be stored separately to comply with this requirement. Otherwise, the wastes listed in Table 4-1 are generally all ignitable and can be stored in the same area.

7. **Air emission standards.** The owner or operator shall manage all hazardous waste placed in a container in accordance with the applicable requirements of subparts AA, BB, and CC of this part.

This requirement applies to large-quantity generators. Autobody shops should ensure that waste is stored in U.S. Department of Transportation (DOT) approved containers and that these containers remain closed when not being filled.

Note: A hazardous waste generator must package the waste in accordance with DOT requirements. They can be found in 49 CFR 173, 178, and 179. These regulations are not reviewed in detail here. But, there are many training seminars available which detail the specific requirements. Basically, shops must ensure that they are using DOT-approved containers in good condition which are compatible with the material being shipped

4.4 Hazardous Waste Storage – Containment

In addition to the container requirements listed in the previous section 4.3, the area in which hazardous wastes are stored (the 90-day storage area) must have a secondary containment system which is capable of containing a leak or spill. This containment system must be designed and operated as follows:



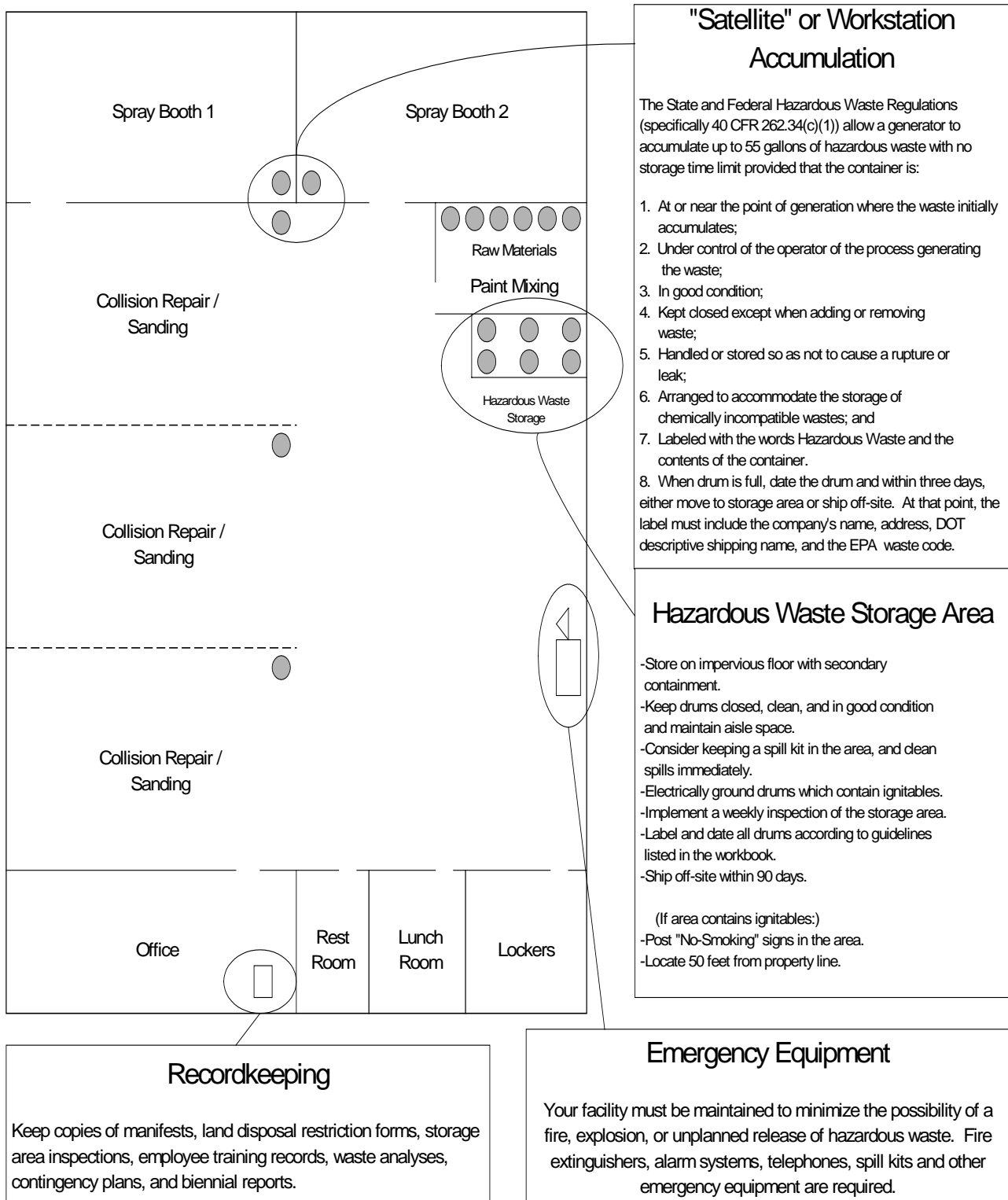
1. A base must underlie the containers which is free of cracks or gaps and is sufficiently impervious to contain leaks, spills, and accumulated precipitation until the collected material is detected and removed;
2. The base must be sloped or the containment system must be otherwise designed and operated to drain and remove liquids resulting from leaks, spills, or precipitation, unless the containers are elevated (on wooden pallets, for example) or are otherwise protected from contact with accumulated liquids;

3. The containment system must have sufficient capacity to contain 10% of the volume of all containers or the volume of the largest container, whichever is greater. Containers that do not contain free liquids need not be considered in this determination;
4. Run-on [for outdoor storage areas] into the containment system must be prevented unless the collection system has sufficient excess capacity in addition to that required in #3 above to contain any run-on which might enter the system; and
5. Spilled or leaked waste and accumulated precipitation must be removed from the sump or collection area in as timely a manner as is necessary to prevent overflow of the collection system. (If the collected material is a hazardous waste, it must be managed as a hazardous waste in accordance with all applicable requirements.)
6. Floor drains that discharge to the subsurface, sewer system, or direct to a waterway are strictly prohibited in these areas.

Autobody shops that generate hazardous waste should immediately construct and/or purchase a containment system in accordance with the requirements listed above. Note that commercial storage lockers are available which should comply with these requirements.

Figure 4-1 on the following page provides a summary of Hazardous Waste Storage requirements.

Figure 4-1: Summary of Hazardous Waste Storage Requirements



4.5 Container Labeling Requirements

Each container in the hazardous waste storage area must be labeled with the following information:



1. The words: *"HAZARDOUS WASTE - Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency."*
2. The generator's name and address of generating facility.
3. The DOT shipping name and the generic names of the principle hazardous waste components (if the proper DOT shipping name is not conclusive in identifying the hazardous waste).
4. The EPA or Rhode Island waste code.
5. Date of containerization. (The date that the 90 day "clock" begins ticking.)
The accumulation start date is the date that hazardous waste first begins accumulating in a container, exclusive of satellite accumulation.
6. The hazardous waste manifest document number (prior to being shipped off-site).
7. DOT hazard label.

EPA Marking

HAZARDOUS WASTE -Federal Law Prohibits Improper Disposal. If found, contact the nearest police or public safety authority or the U.S. Environmental Protection Agency.

The Generator's Name and Address: _____

Generic Waste Shipping Name: _____

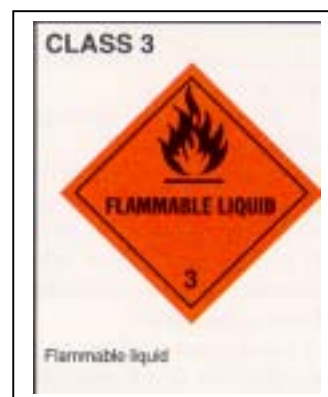
Hazard: _____

EPA Waste Code: _____

Date of Containerization: _____

Manifest Document Number: _____

DOT Hazard Label



Labels are readily available from lab safety catalogs or from your waste transporter. DOT hazard labels depend on the material in the container. The Class 3 "Flammable Liquid" label will be used for many of the materials shipped from body shops.

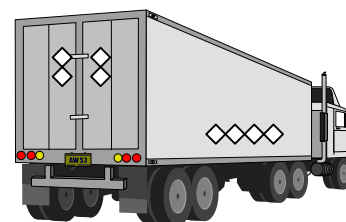
Each "Satellite" Accumulation container must be labeled with the words *Hazardous Waste* along with a description of the waste. However, if the container is ultimately moved to the storage area to become the shipping container, then it must have all of the items listed above (the company's name, address, DOT descriptive shipping name, and the EPA waste code).

The hazardous waste generator is also responsible to ensure that the vehicle transporting its hazardous waste is licensed in RI and has the correct placards. Placards are similar in shape and color to the hazard labels, but are larger and must be on all four sides of the vehicle. If the vehicle does not have the correct placards, it is the generator's responsibility to placard the truck correctly, though this generally is not necessary with competent waste transporters.



Placard

4.6 Offering Hazardous Waste for Shipment – Licensed Transporters, EPA ID Numbers, and Waste Manifests



You will need a licensed hazardous waste transporter to remove your hazardous waste. Your transporter may provide you with a manifest for each shipment, which may be preprinted, except for your signature. If you do not complete the manifest yourself, make sure that you check it carefully for accuracy with regard to your EPA ID number, amount and type of wastes. A list of licensed RI Waste Transporters can be found at www.state.ri.us/dem.

EPA Identification Numbers and Authorized Agents

An autobody shop must not generate, store, or offer for transportation, hazardous waste without having received an EPA identification number. Shops also must not offer hazardous waste to commercial transporters or to treatment, storage, or disposal facilities that have not received an EPA identification number, and the Transporter must have a valid RI Hazardous Waste Transporter Permit as

indicated by an official sticker on the vehicle. To obtain an EPA ID Number, contact DEM at 222-4700 and indicate that you are requesting an EPA ID Number for Hazardous Waste Generation.

A generator must also submit to the Department the names and signatures of all agents of the generator (e.g. employees) that are authorized to sign the manifest. If these agents change, this information must be updated with the Department.

Hazardous Waste Manifests

A manifest is an eight-copy document designed to track your hazardous waste shipment. A manifest is shown in Figure 4-2. As stated previously, it is the generator's responsibility to make sure that the manifest is accurate, even if it is filled out by the transporter for you. At shipment, you must sign it and keep copy 8, copies 6 and 7 must then be mailed to RI DEM and the state receiving the waste (if RI, then to DEM also). Some transporters will mail copies 6 and 7 for you. The facility receiving your waste will send you a signed Copy 3 of the manifest within 35 days. If not, you must contact DEM's Division of Compliance and Inspection at 222-1360 for guidance. Staple copies 3 and 8 together and keep in your records for three years. Note that for waste automotive oil, the transporter may be using waste oil manifests, in which case, the generator does not have to send anything to DEM.

Figure 4-2: Hazardous Waste Manifest

Please print or type (Form designed for use on eite (12 - pitch) typewriter) Form Approved: OMB No. 2050 - 0039 Expires 9 - 30 - 91

UNIFORM HAZARDOUS WASTE MANIFEST		1. Generator's US EPA ID No.		Manifest Document No.		2. Page 1 of		Information in the shaded areas is not required by Federal law	
3. Generator's Name and Mailing Address						A. State Manifest Document Number			
4. Generator's Phone ()						B. State Generator's ID			
5. Transporter 1 Company Name			6. US EPA ID Number			C. State Transporter's ID			
7. Transporter 2 Company Name			8. US EPA ID Number			D. Transporter's Phone			
9. Designated Facility Name and Site Address						E. State Transporter's ID			
10. US EPA ID Number						F. Transporter's Phone			
11. US DOT Description (Including Proper Shipping Name, Hazard Class, and ID Number)						G. State Facility's ID			
12. Containers						H. Facility's Phone			
13. Total Quantity						I. Waste No.			
14. Unit Wt/Vol						J. Additional Descriptions for Materials Listed Above			
15. Special Handling Instructions and Additional Information						K. Handling Codes for Wastes Listed Above			
16. GENERATOR'S CERTIFICATION: I hereby declare that the contents of this consignment are fully and accurately described above by proper shipping name and are classified, packed, marked, and labeled, and are in all respects in proper condition for transport by highway according to applicable international and national government regulations.									
If I am a large quantity generator, I certify that I have a program in place to reduce the volume and toxicity of waste generated to the degree I have determined to be economically practicable and that I have selected the practicable method of treatment, storage, or disposal currently available to me which minimizes the present and future threat to human health and the environment; OR, if I am a small quantity generator, I have made a good faith effort to minimize my waste generation and select the best waste management method that is available to me and that I can afford.									
Printed/Typed Name					Signature				
17. Transporter 1 Acknowledgement of Receipt of Materials					Month Day Year				
Printed/Typed Name					Signature				
18. Transporter 2 Acknowledgement of Receipt of Materials					Month Day Year				
Printed/Typed Name					Signature				
19. Discrepancy Indication Space									
20. Facility Owner or Operator: Certification of receipt of hazardous materials covered by this manifest except as noted in item 19.									
Printed/Typed Name					Signature				
Month Day Year					Month Day Year				

EPA Form 8700 - 22 (Rev. 8 - 88) Previous editions are obsolete.

Land Disposal Restrictions (LDRs)

Hazardous wastes can not be disposed of in a landfill unless strict treatment standards are met. Liquid wastes are banned from land disposal, so substances generated at autobody shops, such as ignitables, are incinerated to meet the restrictions. LDRs have paperwork requirements, so you must also review, sign, and keep a copy of a document known as a Landfill Disposal Restriction Form, even if it is filled out by your waste handler. If your waste is to be land-disposed, you should make sure you staple your copy of this form to the manifest.

4.7 Emergency Preparedness and Prevention/Contingency Plans



Equipment Required

Your facility must be maintained in order to minimize the possibility of a fire, explosion, or unplanned release of hazardous waste constituents. Your facility must have the following:

1. An internal communications or alarm system capable of providing immediate emergency instruction (voice or signal) to facility personnel.



2. A device, such as a telephone (immediately available at the scene of operations) or a hand-held two-way radio, capable of summoning emergency assistance from local police and fire departments.



3. Portable fire extinguishers, fire control equipment (including special extinguishing equipment, such as that using foam, inert gas, or dry chemicals), spill control equipment, and decontamination equipment.



4. Water at adequate volume and pressure to supply water hose streams, or foam producing equipment, or automatic sprinklers, or water spray systems. (Adequate water pressure can be determined during the annual sprinkler test required by OSHA and local fire departments.)



5. All facility communications or alarm systems, fire protection equipment, spill control equipment, and decontamination equipment, where required, must be tested and maintained as necessary to assure its proper operation in time of emergency.
6. Whenever hazardous waste is being poured, mixed, spread, or otherwise handled, all personnel involved in the operation must have immediate access to an internal alarm or emergency communication device, either directly or through visual or voice contact with another employee.

7. The owner or operator must maintain aisle space to allow the unobstructed movement of personnel, fire protection equipment, spill control equipment, and decontamination equipment to any area of facility operation in an emergency, unless aisle space is not needed for any of these purposes.
8. The owner or operator must attempt to make arrangements to familiarize local police, fire departments, and emergency response teams with the layout of the facility, properties of hazardous waste handled at the facility and associated hazards, places where facility personnel would normally be working, and possible evacuation routes. (Note: Where more than one police and fire department might respond to an emergency, agreements designating primary emergency authority to a specific police and a specific fire department, and agreements with any others to provide support to the primary emergency authority should be obtained.)
9. The owner or operator must attempt to make arrangements to familiarize local hospitals with the properties of hazardous waste handled at the facility and the types of injuries or illnesses which could result from fires, explosions, or releases at the facility.
10. With regard to #8 and #9, where State or local authorities decline to enter into such arrangements, the owner or operator must document the refusal in the operating record of the facility.

Written Contingency Plan

Each facility must have a written contingency plan designed to minimize hazards to human health or the environment from fires, explosions, or any unplanned release of hazardous waste to air, soil, or surface water. The plan should outline specific steps that company personnel will take in response to emergencies. To help autobody shops develop their contingency plans, a guidance document with fill-in sections has been included in Appendix A. Once developed, this plan is required to be submitted to local emergency response providers. Should the response providers be unwilling to make arrangements with you, document this in the operating record of the facility.



In the development of this plan, you must designate an emergency coordinator. Should an emergency situation arise, the emergency coordinator must

be prepared to act quickly to protect employees, emergency response personnel, and the environment. Also, evacuation routes should be posted along with exit signs in areas where hazardous wastes are handled or stored.

4.8 Annual Personnel Training

Personnel dealing with hazardous waste at the facility of a generator engaging in 90-day accumulation must successfully complete a program of classroom instruction or on-the-job training that teaches them hazardous waste management procedures (including contingency plan implementation) relevant to the positions in which they are employed. The program must be directed by a person already trained in hazardous waste management procedures, and must include instruction which teaches employees dealing with hazardous waste the following:



- Knowledge of what a hazardous waste is;
- Knowledge of which wastes are hazardous at the facility;
- Management procedures which include all applicable types of hazardous waste storage and accumulation;
- Labeling;
- Accumulation start dates;
- Storage area inspections;
- Manifesting;
- Preparedness and prevention, and;
- Contingency plan implementation.

The training program must also be designed to ensure that facility personnel are able to respond effectively to emergencies by familiarizing them with emergency procedures, emergency equipment, and emergency systems, including:

1. Procedures for using, inspecting, repairing, and replacing facility emergency and monitoring equipment;
2. Communications or alarm systems;
3. Response to fires or explosions;
4. Response to groundwater contamination incidents;
5. Operation of any waste feed cut-off systems, and;
6. Shutdown of operations.

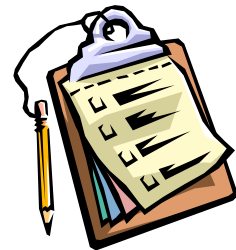
Facility personnel must successfully complete the program within six months of the date of their employment or assignment to the facility, or to a new position at the facility, whichever is later. Employees must not work in unsupervised positions until they have completed the training requirements. In addition, facility personnel must take part in an annual review of the initial training. With regard to this training, the generator must maintain the following documents and records at the facility:

1. The job title for each position at the facility related to hazardous waste management, and the name of the employee filling each job;
2. A written job description for each position;
3. A written description of the type and amount of both introductory and continuing training that will be given to each person filling a position.
4. Records that document that the training or job experience required has been given to, and completed by, facility personnel.

Training records on current personnel must be kept until closure of the facility. Training records on former employees must be kept for at least three years from the date the employee last worked at the facility. Personnel training records may accompany personnel transferred within the same company.

4.9 Recordkeeping and Reporting

Autobody shops need to record the following:



1. A generator must keep a copy of each signed manifest for three years, including a signed copy from the designated facility which received the waste. This signed copy must be retained as a record for at least three years from the date the waste was accepted by the initial transporter.
2. A generator must keep records of any test results, waste analyses, or other determinations made in accordance with its identification of hazardous waste for at least three years from the date that the waste was last sent to an on-site or off-site treatment, storage, or disposal facility.
3. Each even-numbered year, DEM sends a Biennial Report to be filled out by generators. The report requests information such as:

- The EPA identification number, name, and address of the generator.
- The EPA identification number, name, and address for each off-site treatment, storage, or disposal facility in the United States to which waste was shipped during the year.
- The name and EPA identification number of each transporter used during the reporting year for shipments to a treatment, storage or disposal facility within the United States.
- A description, EPA hazardous waste number (from 40 CFR part 261, subpart C or D), DOT hazard class, and quantity of each hazardous waste shipped off-site for shipments to a treatment, storage or disposal facility within the United States.
- A description of the efforts undertaken during the year to reduce the volume and toxicity of waste generated.
- A description of the changes in volume and toxicity of waste actually achieved during the year in comparison to previous years.

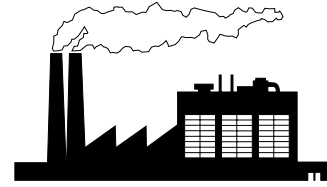
A generator must keep a copy of each Biennial Report for a period of at least three years from the due date of the report.

4. A generator who does not receive a copy of the manifest with the handwritten signature of the owner or operator of the designated facility within 35 days of the date the waste was accepted by the initial transporter must contact the transporter and/or the owner or operator of the designated facility to determine the status of the hazardous waste. If the generator has not received a copy of the manifest with the handwritten signature of the owner or operator of the designated facility within 35 days of the date the waste was accepted by the initial transporter, the generator must file an Exception Report with DEM. The Exception Report must include:

- (i) A legible copy of the manifest for which the generator does not have confirmation of delivery;
- (ii) A cover letter signed by the generator or his authorized representative explaining the efforts taken to locate the hazardous waste and the results of those efforts. Copies of Exception Reports must be kept for three years.

Section 5.0 – Air Pollution Control

When we think of air pollution, the first thing that generally comes to mind is smoke billowing from factory smokestacks. However, air pollution can be generated from many types of industrial processes, even without the visual presence of billowing smoke. Autobody shops play a role in generating air pollution. Although such pollution does not take the form of billowing smoke, these emissions may nonetheless be detrimental to the health of the shop worker and the environment.



Air pollution from autobody shop operations is generated from 3 main activities; surface preparation, surface coating, and cleanup. Each of these activities can be performed by various methods, and each carries its share of environmental requirements.

5.1 Surface Preparation – Fugitive Dust

Surface preparation and resurfacing operations conducted on vehicles are types of activity that would be regulated under Rhode Island Air Pollution Control Regulation # 5, “Fugitive Dust” (Section 5.1 (d)).



If your shop uses disc sanders to remove paint and body filler from cars, chances are good that, unless the sander has a dust collection device, dust generated from the sander could travel beyond the property of your shop. This is prohibited by DEM. Section 5.2 of the Fugitive Dust regulation says that “no person shall permit any materials (such as sanding dust) to be transported in any way so as to cause (the dust) to travel beyond the property line without taking adequate precautions to prevent the dust from becoming airborne.” Shop fans that exhaust to the outside may be a primary means for sanding dust to travel beyond the property line. Also, leaving the doors of your shop opened to the outside (commonly done during the warmer weather) presents another opportunity for sanding dust to travel outside your shop. Research has shown that sanding dust contains toxic metals, such as lead, arsenic, cadmium and chromium. Excessive exposure to toxic metals can cause adverse health affects. It is therefore very important that sanding dust be controlled. By using a disc sander in combination

with a dust collection unit, your body shop can significantly reduce potential occupational and environmental health risks associated with sanding dust generated during resurfacing operations.

When used properly, vacuum units (also referred to as “dustless vacs” or “ventilated sanders”) can control up to 90% of sanding dust generated from the disc sanding operation. A vacuum sanding unit features a sanding disc that is perforated with a series of holes. As sanding dust is generated, it is vacuumed through the holes. The dust moves through a hose that is attached to the sanding unit; it then travels to a collection unit where it is stored until it can be characterized for proper disposal. (See Table 4-1 in Section 4.1 for assistance with characterizing your sanding dust.)



Vacuum holes for sander. Note the vacuum hose attached to sanding unit. Sanding dust is collected in a container nearby, or in a central location.

5.2 Surface Preparation/Cleanup – Control of Volatile Organic Compounds (VOCs) and Toxic Air Contaminants



VOCs are hydrocarbon-based compounds, such as solvents, thinners, or alcohol-based materials that evaporate easily into the air. When VOCs are emitted into the air and combine with sunlight, they produce ozone, (otherwise known as “smog”). A majority of autobody paints contain VOCs, as well as do solvents used for mixing paint and cleaning equipment. Toxic Air Contaminants are specifically listed in the Rhode Island Air Pollution Control Regulations and have been confirmed to cause acute or chronic health effects. (Methylene chloride, commonly found in paint strippers is a listed Toxic Air Contaminant.) As such, facilities are not allowed to emit more than a threshold quantity of a Toxic Air Contaminant without a permit and possibly, a control device. Specific actions that autobody shops must take to comply with VOC and Toxic Air Contaminant Regulations are listed in the following sections.

5.2.1 Required Compliant Coatings

Autobody coatings, their application, and recordkeeping are regulated by Air Pollution Control Regulation No. 30, "Control of Volatile Organic Compounds from Automotive Refinishing Operations." Autobody shops *must* use coatings which comply with the VOC limitations listed in Reg. 30, and individuals who sell or offer for sale any automobile coating or surface preparation product *must* ensure that their coatings comply with the limits. There are two groups of vehicles covered. Group I vehicles include passenger cars, large/heavy duty truck cabs and chassis, light and medium duty trucks and vans, and motorcycles. Group II vehicles include public transit buses and mobile equipment. For each vehicle group, Reg. 30 lists the emission limitations and they are reproduced in Table 5-1 below:



Table 5-1: Emission Limitations for Autobody Coatings

Type of Coating	Emission Limitation	
	Group I Vehicles	Group II Vehicles
	lb VOC/gallon of coating minus water	lb VOC/gallon of coating minus water
Pretreatment	6.5	6.5
Primer/Primer-Surfacer	4.8	2.8
Primer Sealer	4.6	3.5
Topcoat	5.0	3.5
Three or Four Stage Coating	5.2	N/A
Specialty Coating	7.0	7.0
Extreme Performance Coating	N/A	6.2

To check your coatings, compare the product labels or "Certified Product Data Sheet" (provided by the coating manufacturer which furnishes the VOC content for recordkeeping) with Table 5-1 or contact DEM's Office of Technical & Customer Assistance for help. In most cases, the burden to meet these limitations lies with the coating manufacturer. Note that there are some instances where facilities can use alternative coatings. In these cases, a shop must install a control system approved by the Department which reduces VOC emissions from the facility by 95% or greater.

5.2.2 Required Equipment

High Volume / Low Pressure (HVLP) Spray Guns



The Automobile Refinishing Regulation requires that autobody shops use either electrostatic spray technology or HVLP spray gun technology. Shops can use other methods, but they must achieve a transfer efficiency of at least 65%, and the method must be approved by DEM in advance. The most preferred way of attaining this level of transfer efficiency is by using HVLP. Other advantages exist in using HVLP spray guns. They help to reduce paint overspray, which in turn can result in less paint wasted, cleanup cost savings and less frequent spray booth filter changes.

Enclosed Spray Gun Cleaners

Enclosed spray gun cleaners prevent solvent from escaping to the environment. They separate the sludge waste and recirculate the solvent for reuse. Cleaning spray guns in enclosed gun cleaners also helps to extend the life span of the gun itself.



DEM requires all body shops to clean their spray guns in a device where:

1. Solvent must be recirculated during the cleaning process so that the solvent is used until it no longer cleans guns satisfactorily; and
2. Spent solvent must be collected so it is available for disposal; and
3. The device must be vapor tight during cleaning, rinsing and draining operations (or must achieve equivalent emissions reductions approved by DEM).

If you need to soak the exterior of the guns to remove built-up paints, it also must be done in an enclosed system.

Containers

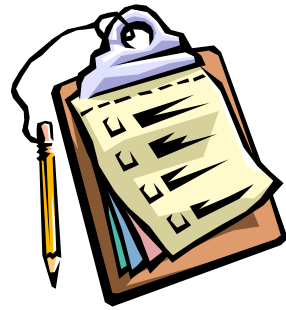
Thinner, paints, or any other volatile material, including rags, must be stored in closed containers *at all times*, unless adding or removing material. Note that this applies to waste materials as well.

Spray Booth Cleaning

Over time, shops may wish to clean the interior of spray booth surfaces. Consider using recyclable masking (plastic or paper sheeting) over interior paint booth surfaces in place of solvent-based cleaners for removing paint residue. If this is not practical, surface scraping or the use of alternative low VOC cleaners should be considered.

5.2.3 Recordkeeping

Section 30.5.1 of the Automobile Refinishing Operations regulation requires that shops collect and record all of the following information and maintain this information at their shop for 3 years:



1. The name, product number and manufacturer of all coatings, surface preparation products, and other solvents used in your shop;
2. The amount of each of these coatings used in your shop, and;
3. The Certified Product Data sheet that lists the amount of VOCs contained in the product. Such information may be acquired from the product ingredient label or the product's Material Safety Data Sheet (MSDS).

The reasoning behind this regulation is to assure DEM or EPA officials that your shop is using compliant coatings in amounts that fall below permitting thresholds.

5.2.4 Permitting Thresholds for Toxic Air Contaminants

Methylene Chloride used in Paint Stripping Operations

Methylene chloride is listed as a toxic air contaminant. Personal air monitoring of body shop personnel has shown that methylene chloride can exceed OSHA health standards when used to strip paint in body shops. The best way to avoid dealing with the regulatory burdens associated with using methylene chloride is to *eliminate it from your shop altogether*. Instead, consider stripping paint from cars using a disc sander that has a dust-capturing capability associated with it or use an alternative stripper without methylene chloride. (Note that alternatives are sometimes flammable, and low-odor alternatives can be just as

dangerous because they still contain solvent.) The emissions threshold for methylene chloride is 1000 pounds per year. Methylene chloride waste must also be disposed of as a hazardous waste, and therefore managed as such under the requirements of DEM's Rules and Regulations for Hazardous Waste Management.

Other Emissions Thresholds for Permitting

Substances that are commonly found in autobody shops and their minimum-use thresholds are listed in Table 5-2. The full list of substances is found in Table III of Air Pollution Control Regulation No. 22, "Air Toxics." If you must use any of these substances in an amount over the listed threshold, you must contact DEM's Division of Air Resources to obtain a permit. As shown in Table 5-2, the emission thresholds for three metals commonly found in sanding dust is zero (0). Control technologies (such as ventilated equipment) that prevent the release of fugitive dust, therefore, are important considerations in autobody repair.

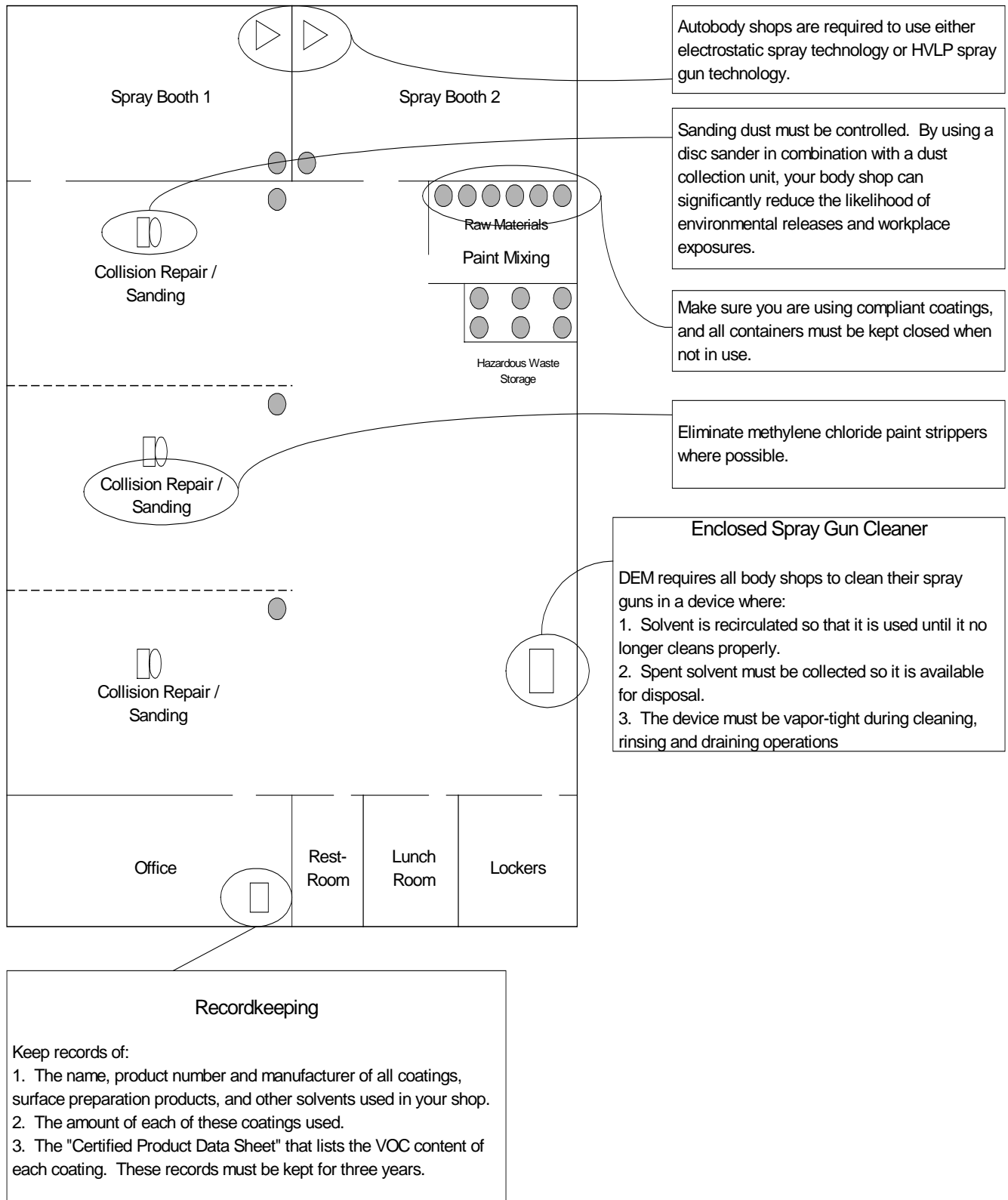
Table 5-2: Minimum Quantities of Air Toxics

Air Contaminant	Emission Threshold (lb/year)
Antimony & Antimony Compounds	10,000
Arsenic & Arsenic Compounds	0
Cadmium & Cadmium Compounds	0
Chromium & Chromium Compounds	0
Manganese & Manganese Compounds	100
Methylene Chloride (Dichloromethane)	1,000
Nickel & Nickel Compounds	1
Styrene	10,000
Toluene	10,000
Xylene	10,000

5.3 Odors

Air Pollution Control Regulation No. 17, "Odors," states that "no person shall emit...any air contaminant(s) which creates an objectionable odor beyond the property line...." If your shop is in a populated area, odor complaints can be lodged against your shop. Should DEM receive a complaint, you may receive a visit from an environmental inspector who will determine if the odor is objectionable. You then may be required to modify or install control equipment such as: air dilution equipment, increasing stack height, modification of exhaust fans, installation of carbon adsorbers, or thermal destruction technologies.

Figure 5-1: Summary of Air Pollution Control Requirements



Section 6.0 – Water Pollution Control

Aside from the typical shop procedures of frame straightening, grinding, sanding, and spray painting, a car that has undergone auto body repair is usually washed before it is returned to the customer. In fact, a car is usually washed before any bodywork is performed on it. Another typical procedure in an auto body shop that requires water usage is wet sanding, where floors are hosed down on a regular basis. With the generation of wastewater in an autobody shop comes the inevitable question of how to dispose of it all. Depending upon the mechanism by which your wastewater enters the environment, you may be subject to differing sets of requirements.



6.1 Best Management Practices to Minimize Water Pollution

There are some simple measures your shop can take to minimize water pollution.

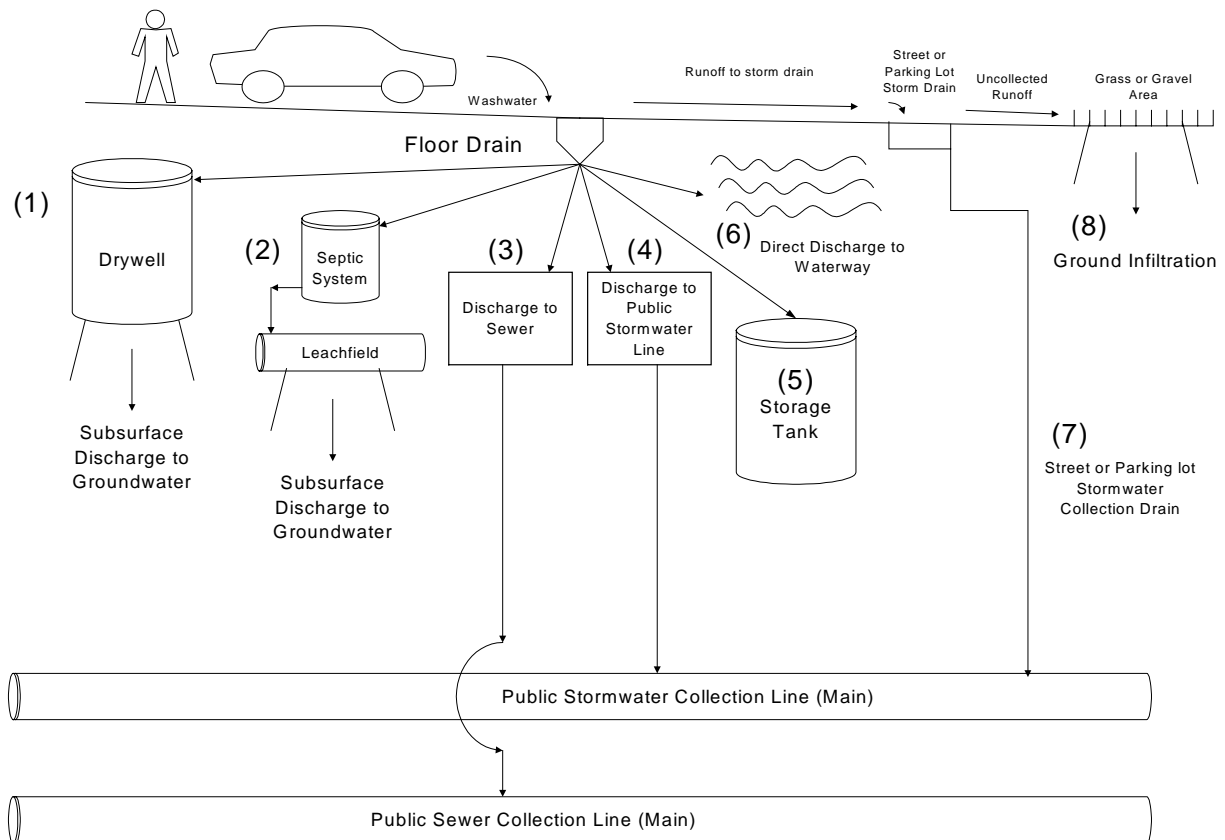
- Collect all unused paints for reuse or proper disposal.
- Keep paints, cleaners, and any chemicals or materials which can cause runoff (indoors or otherwise) protected from rainwater.
- Provide secondary containment for all chemicals including paints, thinners, strippers, cleaners, and automotive fluids.
- Use dry cleaning methods, such as sweeping and vacuuming, when cleaning the shop, since these materials can contain regulated pollutants. Do not wash these materials into floor drains or the sewer system.
- Minimize wet sanding practices, and use dustless vacuum sanders.
- Preclean equipment by wiping excess materials off prior to washing.
- Consider using a wastewater collection system to collect and recycle washwater for car washing.
- Be prepared to contain and collect any automotive fluids such as oil, antifreeze, power steering, transmission, and differential fluid. Use drip pans or absorbents to collect fluids. Do not wash these fluids to floor drains.

6.2 Floor Drains – Where does your wastewater flow?



You must first find out where your floor drains discharge. Check your building's records, check with a plumber, or check with an environmental consultant to determine where your wastewater goes. Figure 6-1 provides a breakdown of the many different routes that your wastewater can take. There are distinct regulatory requirements depending upon your situation. They are described according to the numbered item in the Figure.

Figure 6-1: Potential Wastewater Discharge Points



6.2.1 Drywells and Other Subsurface Leaching systems

The installation of new floor drains in autobody facilities that will discharge below the ground via a dry well, septic system, galley or other means, are prohibited. Existing floor drains that discharge below ground require an approval for continued use from DEM's Underground Injection Control Program, provided

that the discharge meets regulatory discharge standards. Contact DEM's Underground Injection Control Program at 222-6820 for more information on this topic, or to close your floor drain. **Do not simply seal the drain without going through proper closure procedures in conjunction with the UIC program.**

6.2.2 Individual Sewage Disposal Systems (ISDS) or Septic Systems

Septic systems are specifically designed to handle sanitary wastes from sinks, showers, and toilets in your shop. Floor drains should **not** be routed to the septic system, and process chemicals should **not** be flushed down sinks or toilets. Should your shop have floor drains which lead to an ISDS, proper closure is required through DEM's Underground Injection Control Program. Contact DEM's Underground Injection Control Program at 222-6820 for more information on this topic. **Do not simply seal the drain without going through proper closure procedures in conjunction with the UIC program.**

6.2.3 Sewer Discharges

Sewer systems may receive both sanitary and process wastewater from households and businesses. Depending on your location, your sewer discharge is required to be permitted by the local sewer authority. (In the greater Providence area, this agency is known as the Narragansett Bay Commission; check with your city/town or contact OTCA if you need help determining your sewer permitting authority.) Sewer discharge permits for floor drains in autobody shops normally contain provisions for discharge limitations for certain pollutants such as oil and grease, metals, and possibly volatile organic compounds. The permits can also mandate that wastewater collection equipment such as an oil and solids or grit separator be installed.

6.2.4 Discharges to Public Stormwater Collection Lines

Although rare, it is possible that your floor drains lead to the street stormwater collection basins. Depending on your location, this discharge will be regulated by the local sewer authority. (Again, in the greater Providence area, this agency is known as the Narragansett Bay Commission; check with your city/town or contact OTCA if you need help determining your sewer permitting authority.) You may be required to direct this connection to the sewer line. Sewer discharge permits for floor drains in autobody shops normally contain provisions for discharge limitations for certain pollutants such as oil and grease, metals, and possibly volatile organic compounds. The permits can also mandate that

wastewater collection equipment such as an oil and solids or grit separator be installed.

6.2.5 Wastewater is collected in a tank with no discharge ("Tight Tank")

Should your wastewater be collected in a tight tank, it may be subject to both Underground Storage Tank requirements and Hazardous Waste requirements. Depending on the chemical composition of your wastewater, it may be considered a hazardous waste. Refer to Section 4.1 of the workbook for assistance with hazardous waste identification. If you determine that your wastewater is a hazardous waste and it is stored in an underground "tight" tank, then it must be permitted through DEM's Underground Storage Tank Program.

6.2.6 Direct Discharge to a Waterway

The installation of new floor drains in autobody facilities that will discharge directly to a waterway is prohibited. Autobody shops should verify that existing floor drains are connected to either the local sewer or some other system. (Sewer connections are subject to local permitting.) Contact OTCA for more information on this topic.

6.2.7 Wastewater runs off site lot to street storm drains

Your wastewater must not be allowed to run off your site and enter stormwater collection drains. Consider connecting to your local sewer system for disposal of wastewater. Should your area not have a municipal sewer system, consider installation of a tight tank to contain wastewater either for reuse or disposal. Check with DEM at 222-2797 should you wish to install an underground tank. Also, stormwater drains may discharge to the subsurface through a drywell or other means. In this case contact DEM's UIC Program for approval of continued use, or for proper closure.

6.2.8 Wastewater is not collected and just infiltrates the ground

Do **not** allow wastewater to simply collect and infiltrate into the ground. Consider connecting to your local sewer system for disposal of wastewater. Should your area not have a municipal sewer system, consider installation of a tight tank to contain wastewater either for reuse or disposal. Check with DEM at 222-2797 should you wish to install an underground tank.

6.3 Stormwater

Storm drains, by law, are not to be used for wastewater discharges from auto body shop activities, due to contaminants (such as toxic metals or other pollutants) that may be contained in the wastewater. Consider connecting to your local sewer system for disposal of wastewater. Wastewater created in the autobody shop from activities (such as car or floor washing) that has the potential to discharge to a floor, storm or other drain, must be approved and permitted by the city or town's wastewater treatment authority. Should your area not have a municipal sewer system, consider installation of a tight tank to contain wastewater either for reuse or disposal. Check with DEM should you wish to install an underground tank at 222-2797. Storm drains that are designed to handle and discharge to the subsurface (through a drywell, galley, or other means) are UIC systems which should not be used for disposal of wastewater discharges from autobody shop activities.



6.4 What to expect from a sewer discharge permit

When applying for a sewer discharge permit, expect to provide the following:

- plans and schematics of the building and operation,
- a spill control plan,
- a solvent management plan,
- plans for a wastewater pretreatment system (a pretreatment system collects and treats wastewater prior to sewer discharge.)

Pretreatment may be necessary for the removal of solids and grit and may also include the installation of an oil and grease separator. In addition, a wastewater discharge permit may prohibit the discharge of, and require installation of spill control measures to prevent the discharge of the following materials to the sewer system:

- Solvents
- Antifreeze Solutions

- Degreasing Solutions
- Sludges
- Waste Oils
- Potentially Corrosive Solutions (high or low pH)

Each sewer-permitting agency has a list of parameters (e.g., metals, fat-derived compounds, Biochemical Oxygen Demand (BOD), Volatile Organic Compounds (VOCs), Total Petroleum Hydrocarbons (TPH), etc.) and discharge limitations which must be complied with at all times. Other conditions of the wastewater discharge permit that must be adhered to include periodic sampling, monitoring and inspection, and recordkeeping.

In a nutshell, *a*) vehicle washwater and rinsewater, and *b*) wastewater from maintenance floor washing in the car washing stage of the auto body repair can be discharged to the sewer system or a holding tank under the authority of your local sewer-permitting agency.

Section 7.0 - Health and Safety in the Auto Body Shop

Workers in auto body shops are potentially exposed to a variety of chemical and physical hazards. Chemical hazards may include volatile organic solvents from paints, fillers, and cleaners; silica from sandblasting operations; dusts from sanding; and metal fumes from welding and cutting. Physical hazards include repetitive stress and other ergonomic injuries, noise, lifts, cutting tools, and oil and grease on walking surfaces.



7.1 Workplace Health & Safety Consultation

Fortunately in Rhode Island, there is a place that your shop can turn to for free and confidential assistance to help your shop reduce the risk of occupational accidents and adverse health effects. The Rhode Island Department of Health's (DOH) Workplace Consultative Services Program offers on-site safety and health programs in cooperation with the U.S. Department of Labor. This cooperative effort, known as "Safe Site", offers free expert assistance on safety and health issues, including:

1. **On-site:** Industrial hygienists can visit your auto body shop to help you identify occupational safety and health issues before they become costly problems. You decide which operations you want DOH experts to review, from a particular hazard to a full safety and health assessment.
2. **Off-site:** Safety and health professionals are available by telephone or through scheduled office visits to assist you with the interpretation of regulatory requirements, specific approaches to hazard evaluation, and other health and safety questions.
3. **Testing:** OSHA consultants are equipped with sampling and direct reading instruments to determine whether air contaminants could be a concern for you and your employees. A fully equipped and accredited laboratory provides analytical support.

4. **Information Resources:** Training videos and informational materials about many common workplace hazards are available free of charge. Employers also have access to an extensive library of up-to-date references on occupational safety and health programs.
5. **Training Classes:** Safe Site offers free on-site safety and health training programs at your auto body shop on a wide range of topical issues, including Hazard Communication, Personal Protective Equipment, and Respiratory Protection.

This section of the workbook focuses on health and safety issues affecting all auto body shops, including Hazard Communication, Personal Protective Equipment, and Respiratory Protection, as well as Lockout/Tagout and Emergency Action Plans. It also includes a checklist of safety equipment and procedures that your shop should be employing in day-to-day operations.

Most Frequent Violations Cited by OSHA in Autobody Shops

- | | |
|---|----------------------------------|
| 1) Respiratory Protection | 7) Portable Fire Extinguishers |
| 2) Hazard Communication | 8) Methylene Chloride |
| 3) Spray Finishing w/Flammable Combustibles | 9) Personal Protective Equipment |
| 4) Flammable and Combustible Liquids | 10) Log of Occupational Injuries |
| 5) Electrical, Wiring Methods | 11) Lead |
| 6) Temporary Labor Camps | |



7.2 The Job Safety and Health Protection Poster

All body shops must obtain a U.S. Occupational Safety and Health Administration (OSHA) poster, known as the Job Safety and Health Protection poster. It must be displayed in an area where all employees can see it. It should contain emergency telephone numbers, including both local fire and police departments. Other required posting includes wages, hours and working conditions, along with safety requirements and worker's compensation and disability notifications. The OSHA Poster can be obtained at the Federal OSHA Office Building on 380 Westminster Street, Providence, RI 02903 or by calling 528-4669.

You Have a Right to a Safe and Healthful Workplace.
IT'S THE LAW!

- You have the right to notify your employer of OSHA about workplace hazards. You may ask OSHA to keep your name confidential.
- You have the right to request an OSHA inspection if you believe that there are unsafe and unhealthful conditions in your workplace. You or your representative may participate in the inspection.
- You can file a complaint with OSHA within 30 days of discrimination by your employer for making safety and health complaints or for exercising your rights under the OSHA Act.
- You have a right to see OSHA citations issued to your employer. Your employer must post the citations at or near the place of the alleged violation.
- Your employer must correct workplace hazards by the date indicated on the citations and must verify that these hazards have been reduced or eliminated.
- You have the right to copies of your medical records or records of your exposure to toxic and harmful substances or conditions.
- Your employer must post this notice in your workplace.



The Occupational Safety and Health Act of 1970 (OSHA Act), P.L. 91-593, assures safe and healthful working conditions for working men and women throughout the Nation. The Occupational Safety and Health Administration, in the U.S. Department of Labor, has the primary responsibility for administering the OSHA Act. The rights listed here may vary depending on the particular circumstances. To file a complaint, report an emergency, or ask OSHA advice, information, or products, call 1-800-321-OSHA or your nearest OSHA office. • Boston (617) 625-2343 • Chicago (312) 329-0800 • Dallas (214) 751-4721 • Denver (303) 844-4500 • Kansas City (816) 426-9444 • New York (212) 512-2379 • Philadelphia (215) 594-4900 • San Francisco (415) 775-4330 • Seattle (206) 594-5533. Telephones in OSHA's main office in Washington, D.C. (202) 693-1000. In the complaint section of OSHA's website, you can find more information on OSHA's history and more programs, such as OSHA's website at www.osha-slc.gov. If your workplace is in a non-union setting under an NLRB-approved plan, your employer must post the required state agreement of this poster.

1-800-321-OSHA
www.osha.gov

U.S. Department of Labor • Occupational Safety and Health Administration • OSHA 3368

7.3 The OSHA 300 Log

The OSHA 300 Log is a detailed summary sheet of occupational injuries and illnesses that occur at bodyshop facilities. Employers with 10 or more employees at any point during a calendar year must record information related to an occupational injury or illness on the new OSHA Form 300. Employers are required to record work-related injuries or illnesses if they result in one of the following: death; days away from work; restricted work or transfer to another job; medical treatment beyond first aid; loss of consciousness; or diagnosis of a significant injury/illness by a physician or other licensed health care professional. Employers can consult OSHA's Internet site, www.osha.gov, or contact RI's OSHA Consultation Project at (401) 222-2438 for additional guidance regarding the requirements for documenting, posting and maintaining the OSHA Form 300. The 300 log must be kept for a period of five years. Copies of the OSHA log form can be obtained at the Federal OSHA Office Building on 380 Westminster Street, Providence RI, 02903 or by calling 528-4669.

7.4 The Hazard Communication Standard

In 1983, OSHA adopted the regulation entitled "Hazard Communication" in order to ensure that employees know about chemical hazards in their work environment. This knowledge should help in reducing the incidence of chemical source illnesses and injuries. This guide serves as an outline for autobody shop owners to develop their site-specific Hazard Communication Program. This guide is not considered to be a substitute for an actual Hazard Communication Program and does not guarantee compliance in any subsequent OSHA inspection.

7.4.1 The five major components of the Hazard Communication Standard

include:

- 1) Material Safety Data Sheets (MSDS)
- 2) Container Labeling
- 3) Written Hazard Communication (Hazcom) Program
- 4) Employee Training
- 5) Materials Inventory



Initial steps your facility can take to address the roles and responsibilities of the Hazard Communication Standard include:

- A) Conduct a walkthrough of the workplace and identify and list all materials that may be hazardous: including product names, locations and work areas where products are used. Include hazardous chemicals that are generated in the workplace, but are not necessarily in a container, e.g. welding fumes.
- B) Ensure that all hazardous chemicals that are purchased are included on this list.
- C) Establish a file on hazardous chemicals and include a copy of the latest Material Safety Data Sheet (MSDS) and any other pertinent information.
- D) Develop procedures to keep lists current, including updated MSDSs.

7.4.2 Material Safety Data Sheets

An important component of the Hazard Communication Standard is the Material Safety Data Sheet section. The MSDS provides detailed information, prepared by the manufacturer or importer of a chemical that describes the physical and chemical properties, hazards, and routes of exposure and control measures for that particular substance. Employers must maintain a complete and accurate inventory of MSDSs for each hazardous chemical in the body shop. When new products are used, employers must update their MSDS files and request updated copies from the manufacturer with the next shipment.



- i) If a shop owner doesn't have an MSDS for a hazardous substance in his shop, he should request a copy from the chemical manufacturer, autobody jobber or distributor, or importer.

- ii) Shop owners must make sure that all MSDSs are complete and clearly written. Each MSDS must contain the physical and chemical properties of a substance, as well as the physical and health hazards, routes of exposure, symptoms of exposure, precautions for safe handling, and emergency and first aid procedures.
- iii) The bodyshop owner must make MSDSs available and accessible to all employees. Bodyshop employees must know the location of the MSDS files.

7.4.3 Container Labeling

The manufacturer or distributor is responsible for labeling shipped containers, but the autobody shop employer must also ensure that all containers of hazardous substances in the workplace are labeled, tagged or marked including the identity of the hazardous chemical and appropriate hazard warnings.



- The only exception to this requirement is when a substance is dispensed for immediate use by an employee.
- If a container is not labeled, obtain a label or label information and prepare a label for in-house use. Employers are responsible for ensuring that all containers in the workplace are properly labeled, tagged or marked.
- Include company policies for container labeling as part of the Written Hazard Communication Program and instruct and train employees on the policies for container labeling.
- Pre-made labels are acceptable as long as they contain the required information and effectively communicate chemical identities, hazards and precautions.

7.4.4 Written Hazard Communication Program

A documented and effective program is a key component of the Hazard Communication standard. It is the employer's responsibility to develop and implement a *written* program and make it available to employees.

The program must clearly outline company policies for the following:

- A. Container labeling and other forms of warnings.
- B. Maintenance and update of Material Safety Data Sheets.
- C. Employee training based on the list of chemicals, MSDS's and labeling information.
- D. Methods for communicating hazards and protective measures to employees and outside contractors.

An autobody shop owner must tailor a written program to meet the specific exposures and needs of the workplace. It is important to fully and completely describe the company's efforts to meet the intent of the Hazard Communication regulation. A sample of a written program is included in Appendix B.

7.4.5 Employee Training

The standard requires each bodyshop owner to inform and train employees at the time of their initial assignment and whenever a new hazard is introduced into the work area.



While the outline of topics to be presented is the same for all employers, the actual information presented must be based upon the specific hazard information conveyed by labels and MSDS's for the autobody shop.

The following topics should be covered in all training programs:

1. The provisions of the Hazard Communication Standard, 29 CFR 1910.1200.
2. Any operations in employees' work areas where hazardous chemicals are present.
3. The location and availability of the shop's written hazard communication program, including the list of hazardous chemicals and MSDS's.

4. Methods and observations that may be used to detect the presence or release of a hazardous chemical in the work area.
5. The physical and health hazards of chemicals in the work area.
6. The measures employees can take to protect themselves from these hazards, including information on work practices, emergency procedures and personal protective equipment.
7. The details of the employer's written hazard communication program, including an explanation of the labeling system used, MSDSs, and how employees can obtain and use the appropriate hazard information on labels and MSDSs.

It is important to review and update training on a regular basis. The training sessions should be documented and evaluated to ensure that employees know how to handle chemicals that they are using and are following safe work procedures.

7.4.6 Materials Inventory

Good materials inventory can be crucial to minimizing the danger factor in the event of an emergency situation in your shop. The importance of keeping and updating an inventory of your shop's hazardous materials is a key component of the hazard communication standard that cannot be overstated. Simply stated, materials inventory boils down to careful recordkeeping of hazardous materials, such as paints, primers, and thinners, that are received and stored on your shop's premises. Having a handle on the materials that you store, as well as where and how you store them, can prove valuable to emergency personnel who may be called in to respond to an unsafe chemical scenario occurring in your shop.



Just as important as keeping an accurate materials inventory is the proper storage of such materials. Make sure that hazardous materials are used in a first-in/first-out manner, and avoid stockpiling expired materials; these could pose an unnecessary risk during an emergency situation. Also, never store hazardous materials that are incompatible with each other; for instance, do not store fuels next to chlorinated products, where the potential for spontaneous combustion or an explosion could occur. It is also important to store hazardous materials in an area where the potential for a spill, as well as the risk to employees, is minimized.

7.5 Personal Protective Equipment (PPE)

The Personal Protective Equipment Standard came into being because too many injuries were occurring that could have been avoided with the proper use of PPE. The PPE Standard was implemented in order to reduce eye, head, face and hand injuries.



Under the PPE Standard, **EMPLOYERS** are required to:

- 1) **Perform an initial and annual hazard assessment**, as well as annual retraining, to determine if the use of PPE is required. It must also be documented that a Hazard Assessment of the shop has been completed. An example of a Workplace Hazard Assessment Certification is included in Appendix C.
- 2) **Select and provide –at no cost to the employee– PPE** that protects employees from the hazards identified by the bodyshop manager.

EMPLOYEES must be informed:

- 1) how and why PPE was selected and when each type of PPE is to be utilized
- 2) how to wear, take off and adjust PPE
- 3) regarding the useful life of PPE and any inherent limitations
- 4) how to maintain, clean and dispose of PPE

Employees must receive training to ensure that they understand when to use the necessary PPE. As a bodyshop owner, you are responsible for enforcing the proper use of PPE. Appendix C contains an example Training Certification Statement.

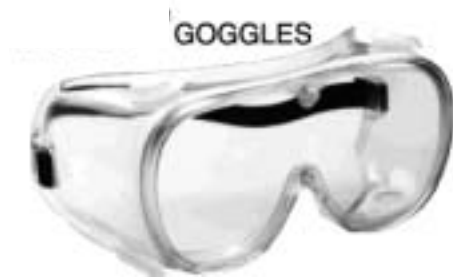
Where needed, bodyshop owners should supply face, eye, and foot protection that meet American National Standards Institute (ANSI) standards. Along with determining that no engineering controls can further reduce the hazards in a shop, the owner is required to select PPE that offers more than a minimum level of protection for bodyshop technicians.

This section of the PPE will be categorized into the most common tasks that take place in an autobody shop. These tasks include:

- 1) Vehicle Cleaning & Washing
- 2) Structural Body Repair
- 3) Cutting, Welding and Dismantling of the Vehicle
- 4) Sanding and Grinding
- 5) Paint Mixing and Post Repair Cleanup
- 6) Spray Painting (Priming, Coating, Clearcoating)

7.5.1 Vehicle Cleaning and Washing

Typically, the first step in the auto refinishing repair process is the cleaning and washing of the vehicle. Technicians should wear goggles to protect their eyes, or may even require a face shield if using pressure washers generating in excess of 1,300 psi. Technicians should also wear goggles and appropriate chemical-resistant gloves when applying solvent-based pre-cleaners to body panels. Although solvent concentrations in today's pre-cleaners have been reduced, there still exists the possibility of exposure to technicians' eyes and skin.



7.5.2 Structural Body Repair

Technicians involved with Structural Body Repair, including frame machines, must take proper precautions to combat potential injuries. It is recommended that technicians regularly check their frame straightening machines for signs of wear to prevent the possibility of a chain snapping. Special care should be taken when working around fuel lines in order to prevent leaks or explosions. Additionally, hydraulic pressure hoses should be checked for any signs of excessive wear, while gauges are to be properly adjusted. Technicians should wear ANSI approved impact resistant eye protection with side shields and cut resistant gloves when working with sharp edges.

Polycarbonate Tuff Specs™



ARMOR-FLEX CUT-RESISTENT GLOVES



7.5.3 Cutting, Welding and Dismantling of Vehicles

Technicians need to wear faceshields with the appropriate lenses when welding or using acetylene torches. Technicians must also wear a leather apron and arm length leather gloves to prevent burns. Gas cylinders must be properly chained and checked for leaks. All welding and torch related tasks should be terminated at least 1 hour before closing to allow sufficient cool-down and prevent overnight fires. An easily accessible ABC rated fire extinguisher should be provided within proximity of any welding or torch-related activities.

WELDING HELMETS



When welding, technicians should be aware of the potential for flammable fluid leaks in the immediate area. Smoking is also prohibited while welding or performing any electrical cutting. Appropriate respirators should be worn during welding, as fumes are toxic. As an extra precaution, technicians should vent welding fumes through properly-designed local exhaust ventilation (such as, for example, a fan that draws fumes away from the breathing zone). Technicians should wear

HEAT RESISTANT LEATHER



ANSI-approved impact resistant eye protection along with special cut-resistant gloves when removing sharp materials from the vehicle. Hearing protection may also be required when using air chisels.



7.5.4 Sanding, Grinding and Chemical Paint Stripping

Technicians involved in the sanding and grinding of vehicles can be exposed to toxic dust. Recent sanding samples collected and analyzed by RI DEM and the URI Center for Pollution Prevention, revealed varying concentrations of metals including lead, cadmium, chromium and arsenic. Technicians could be exposed to these metals through inhalation or incidental ingestion. To reduce the dispersion of dust throughout the workplace when sanding, shop owners can utilize dustless vac technology.



Technicians should not keep food or drink of any kind within the shop area as minute dust particles travel freely throughout the shop and can contaminate food. Technicians should make sure to employ good hygiene practices by washing hands thoroughly before eating, and eat only in a specified area outside the confines of the shop (such as a break room).

ANTI-VIBRATION IMPACT GLOVES



Chemical paint strippers (methylene chloride) are sometimes used by technicians to strip old paint from vehicles. Because OSHA's Permissible Exposure Limit (PEL) on the use of methylene chloride is very stringent, and the paint sludge generated is a regulated hazardous waste, it is recommended that technicians use mechanical paint stripping instead. If methylene chloride (a known human carcinogen) must be used, technicians should take the proper precautions by wearing chemical resistant gloves, and appropriate eye and respiratory protection. Essentially, where methylene chloride is used in the workplace, OSHA requires employers to monitor employee exposures to determine if such exposures exceed the PEL of 25 parts per million (ppm). Under the standard, employers are required to conduct initial monitoring of airborne methylene chloride concentrations and to conduct

PVA COATED ORGANIC SOLVENT GLOVES



periodic monitoring for all tasks where employee exposures to methylene chloride could have detrimental effects. The MSDSs will provide you with additional information you need to properly protect yourself.

7.5.5 Paint Mixing and Post Repair Clean-up

When mixing paint in the paint mixing room prior to painting, technicians must take the proper precautions as outlined in the MSDS provided by the paint manufacturers. When mixing paint, technicians should wear appropriate PPE. During mixing, painters can sometimes spill paint onto their hands or other parts of their skin and should therefore wear gloves and a paint suit. Goggles can protect the eyes if paints/solvents accidentally splash during the mixing process. Respirators may also be needed when mixing paints, especially if hardners containing isocyanates are present. (Typically, a component of the clearcoat and some primers contain isocyanates). During clean-up, painters must reach inside the spray gun cleaner. Therefore, appropriate PPE should be worn during clean-up or if an on-site solvent recovery unit is being used.



Coverall with Attached Hood & Boots



7.5.6 Spray Painting (Priming, Coating, Clearcoating)

Painters engage in a three-step process when painting a vehicle: priming, basecoat application, and clearcoat application. Painters should wear paint suits and gloves, when painting vehicles. The best level of respiratory protection during spray painting is a full-face hood air supplied respirator. Electrical or non-explosion proof equipment should not be located within 20 feet of a spray painting area. "No Smoking" signs should be posted above the spray booth and a fire extinguisher should be hung in an area outside the spraybooth.



7.6 Respiratory Protection Program

The OSHA Respiratory Protection Standard requires shop owners to:

- a) select the proper respirator;
- b) provide medical evaluations for all employees who would wear a respirator beyond a dust mask type;
- c) properly fit test employees;
- d) identify and document the use of the respirators;





- e) train employees in the proper use, care and sanitation of respirators;
- f) implement a written program on respirator usage;
- g) provide a cartridge change schedule for chemical/solvent respirators.

Autobody workers may be exposed to a variety of chemicals on a daily basis. To prevent serious illness that can result from breathing or inhaling solvents (as well as isocyanates and metals), workers must wear the right respirators for the particular task that they are working on. The bodyshop owner is required to make these available to them. Acute exposures to chemicals commonly found in autobody shops can cause coughing, dizziness, light-headedness or possibly unconsciousness. However, long-term or chronic exposures may lead to lung and nervous system disorders, and possibly other diseases. A sample written respiratory protection program is provided in Appendix D.

A Respiratory Protection Program requires that a qualified shop employee oversee the program, and the bodyshop owner must provide respirators, training, and medical evaluations at no cost to the employee.

Depending upon the hazard, a range of respirators are available for consideration:

- **Filtering respirators** are used to reduce exposure to dusts generated while sanding a vehicle. They are not to be used for gases, solvents, or vapors. 
- **Chemical cartridge respirators** are used to reduce the concentration of contaminants in the workers' breathing zone. Chemical cartridges are most often used during the priming process, although if primers present a potential overexposure to isocyanates, an air-supplied respirator may be needed. For welding, technicians should weld only in areas where adequate ventilation (such as exhaust fans) are available, so as not to expose themselves or fellow employees. Welders should also use a welding helmet with a shield and an appropriate respirator to protect the worker against harmful fumes. 

- **Air-supplied respirators** are typically used when applying chemicals with poor warning (i.e., odorless) characteristics or when concentrations exceed those that can be handled by cartridge respirators.

Dust masks and chemical cartridge respirators fall under the category of air-purifying respirators. Such respirators contain filters that are able to trap particles which are larger than the holes in the filter material or are capable of adsorbing chemicals. There are a range of cartridges commercially available that are able to adsorb specific chemicals. ***It is imperative that shop owners choose the right cartridge for the specific job that their employees are working on!*** For instance, a dust mask will not protect a worker who is priming with a coating that contains isocyanates.



The Bodyshop Owner must select a respirator certified by the National Institute for Occupational Safety and Health (NIOSH) which must be used in compliance with the conditions of its certification. In selecting respirators for his employees, the program administrator must identify and evaluate the breathing hazards in the bodyshop.

For protection against gases and vapors, the employer must provide:

- an air-supplying respirator, or
- an air-purifying respirator (APR), provided that:
 - the respirator is equipped with an end-of-service-life indicator (ESLI), such as a color-change expiration gauge for cartridges, certified by NIOSH for the contaminant; and
 - if there is no ESLI appropriate for the conditions of the employer's workplace, the employer must establish a change schedule (such as weekly) for canisters and cartridges that will ensure that they are changed before the end of their service life.

For protection against particulates, the employer must provide:

- an air-supplying respirator, or
- an air-purifying respirator equipped with high efficiency particulate air (HEPA) filters certified by NIOSH or with filters certified by NIOSH for particulates, or
- cartridge replacements for employees wearing APR's for tasks which generate particulates (dust and particles). Cartridges must be changed on their respirators when they first begin to experience difficulty breathing (i.e., resistance) while wearing their masks.

Note: Dust respirators must be fit tested if they are used in areas above the Permissible Exposure Limit (PEL) for dust. If it is not evident how to fit test, they will need to make arrangements with the manufacturer to be fit tested.

7.6.1 Fit Testing

Fit testing pertains to the proper wearing of a respirator so that contaminants generated in the work area are not able to enter through the nose or mouth, which could thus interfere with breathing. It is crucial that a respirator fit the worker correctly, thereby forming a tight seal between the face and the respirator itself. Fit testing is required:

- after the initial medical evaluation;
- prior to initial use;
- whenever a different respirator facepiece is used;
- at least annually thereafter.



banana oil fit testing ampoules

The fit test shall be administered using an OSHA-accepted qualitative fit test (QLFT) or a quantitative (QNFT) protocol.

7.6.2 Use Of Respirators

- Tight-fitting respirators must not be worn by employees who have facial hair at the point of seal contact or any condition that interferes with the face-to-facepiece seal or valve function, as they cannot pass a fit test per OSHA regulations.
- Personal protective equipment (such as goggles) must be worn in such a manner that does not interfere with the respirator's seal to the face of the user.
- Employees must perform a user seal check each time they put on a tight-fitting respirator; information on how to perform such can be obtained from the respirator manufacturer.
- Procedures for respirator use in areas of high concentrations of contaminants (such as a spray booth) must be clearly stated to the employee working in such conditions.

7.6.3 Training

The Bodyshop owner is required to provide training to all technicians who use respirators prior to their first use.

The training should include the following topics:

- 1) The bodyshop's Respiratory Protection Program
- 2) The OSHA Respiratory Protection Standard
- 3) Respiratory hazards that technicians are exposed to and their health effects
- 4) Proper selection and use of respirators
- 5) Limitations of respirators
- 6) Respirator donning and user seal (fit) checks
- 7) Fit testing
- 8) Emergency use procedures
- 9) Maintenance and storage
- 10) Medical signs and symptoms limiting the effective use of respirators
- 11) Cartridge change schedule for chemical or vapor cartridge respirators



Employees should be retrained annually or as needed (e.g., if they change job functions and need a different type of respirator). Bodyshop technicians should be able to demonstrate their understanding of the topics covered in the training through hands-on exercises and a written test.

Respirator training should be documented by the bodyshop owner and should include the type, model, and size of the respirator for which each employee has been trained and fit tested.

7.6.4 Program Evaluation

The Bodyshop owner should also conduct periodic evaluations of the shop to ensure that the provisions of the Respiratory Protection Program are being implemented. The evaluations should include regular consultations with employees who use respirators, site inspections, air monitoring, and a review of records. If any problems are identified, they should be kept in a logbook and addressed by the bodyshop owner.

7.6.5 Documentation and Recordkeeping

A written copy of the Respiratory Protection Program and the OSHA standard must be kept on file and be available for all employees to review. The bodyshop owner is also required to maintain copies of training and fit test records. These records should also be updated as new employees are hired and trained, including fit testing for new employees. The bodyshop owner must maintain copies of the medical records for all employees covered under the respirator program. The completed medical questionnaire and the physicians documented findings are confidential.



7.6.6 Work Area Surveillance

The use of a respirator shall be the last choice of protection against an airborne contaminant. Engineering controls, such as fume hoods and local exhaust hoods, must be considered first. If the contaminant cannot be removed from the work area, substituting a less hazardous chemical or rotating employee duties in order to limit chemical exposures may be considered. All other options must be explored before a respirator is chosen for protection.

7.6.7 Medical Evaluations

The use of a respirator places unusual stress on the wearer. Because of this, employees covered by this program must be evaluated by a physician and receive the physician's clearance to wear a respirator. The purpose of the evaluation is to:

- screen employees for pre-existing conditions that preclude respirator use;
- confirm that the individual can handle the additional stress caused by the respirator, and;
- re-evaluate the wearer periodically for changes in health and abilities.

These evaluations must be made by a competent physician or licensed health care professional (PLHCP) that possesses knowledge of pulmonary disease and respiratory protection.

7.6.8 Periodic Evaluation

Periodic evaluations are required in the following situations:

1. an employee reports medical signs or symptoms that are related to the ability to use a respirator,
2. the physician, supervisor or the respirator program administrator informs the employer that an employee needs to be reevaluated,
3. information from the respiratory protection program, (observations made during the fit test), indicates a need for the employee to be reevaluated,

4. a change occurs in workplace conditions that may result in a substantial increase in the physiological burden placed on an employee (i.e. physical work effort, temperature), or
5. at any time as determined by the attending physician.

7.6.9 Inspection and Maintenance

Each employee issued a respirator must inspect the respirator prior to each use to ensure that it is in good condition. This inspection must include a check of the tightness of the connections and the condition of the facepiece, headbands, valves, and cartridges. The mask itself must be inspected for signs of deterioration. Respirators that are defective or that have defective parts must be taken out of service immediately. If during an inspection, an employee discovers a defect in the respirator, he should bring this to the attention of the bodyshop owner. The program administrator will also make periodic inspections of equipment.



When a respirator is taken out of service, for an extended period of time, the respirator should be tagged "**out of service**" and the employee should be given a replacement of similar make, model and size. Replacement parts must be approved for the specific respirator being repaired. Respirators used infrequently must be inspected monthly for defects, and these inspections must be logged.

7.6.10 Cleaning, Sanitizing and Storage

Each respirator, other than disposable ones, must be cleaned and sanitized after use by the respirator wearer. This must be done in accordance with the manufacturer's recommendations. In the absence of such instructions, remove the filters and straps and wash the facepiece in a mild soap solution with disinfectant. After washing, rinse the respirator thoroughly in fresh water. Drying should take place at room temperature in a room free of contaminants.





When not in use, respirators must be placed in individual sealable containers to protect them from contamination. Storage must be in designated storage areas in such a manner that the respirator will not be distorted or damaged. Storage areas to avoid include workbenches, toolboxes, or hanging from hooks out in the open workroom.

7.6.11 Voluntary Use Of Filtering Facepieces (Dust Masks)

If the employer chooses to provide dust masks for comfort purposes, there is a requirement for training. Where it has been determined that no breathing hazard exists, but the employee wants to use a filtering facepiece, they should follow all instructions provided by the manufacturer. The mask should be stored in a clean environment, as well as maintained and disposed of per the manufacturer's instructions. A full respirator program is not required.



7.7 Lockout/Tagout

The Lockout/Tagout Rule was developed by OSHA in response to injuries and deaths sustained when workers thought that equipment was shut down for maintenance was unexpectedly activated.

The Lockout/Tagout Rule applies to all employers regardless of size.



Lockout/Tagout is the common name for a process of "Control of Hazardous Energy" as established by OSHA. The standard requires bodyshop employers to develop and implement procedures for the isolation of machines or equipment from energy sources. The purpose of lockout/tagout is to prevent injury to persons

during the repair, maintenance, inspection, and adjustment of equipment by controlling all energy sources used, stored, or produced by the equipment.

To **lockout** a machine or piece of equipment, all energy sources are turned off or disconnected, stored energy is released or restrained, and a lock is applied either directly to the disconnects of each energy source or through a lockout device affixed to each energy control device, so that re-energization cannot occur.

To **tagout** a machine or piece of equipment, all energy sources are turned off or disconnected, stored energy is released or restrained, and a warning tag such as “Do Not Operate” is applied to the disconnects of each energy source, so that re-energization cannot occur.



For each piece of equipment where energizing or start-up could cause injury, a procedure must be developed to ensure that equipment cannot be started up during maintenance. It is recommended that for each piece of equipment, the source of power be isolated and physically be locked or tagged, warning against accidental start-up. Anytime equipment is to be shut down, all employees must be notified. An authorized employee is the only one that can remove the lockout or tags.

A Lockout/Tagout procedure, which clearly outlines the scope, purpose, authorization and technique, must be devised and implemented by the Bodyshop Manager. In addition, all employees must be trained to recognize Lockout/Tagout procedures and devices. If outside service technicians or personnel are servicing equipment, the bodyshop manager must exchange information with them regarding their Lockout/Tagout procedures.

7.7.1 Responsibility

Each bodyshop shall develop and implement a lockout/tagout procedure for deactivating its processes and powered equipment. Appropriate employees shall be instructed in the safety significance of the lockout/tagout procedure and shall be informed of employees who are authorized to lockout or tagout. Each new or transferred affected employee and other employees whose work operations are or may be in the area shall be instructed in the purpose and use of the lockout/tagout

procedure and how to notify. The procedure shall ensure that before any work on these systems begins, all processes and energy sources have been:

- Deactivated
- Secured by positive means
- Tested to ensure deactivation

7.7.2 Basic rules for using lockout or tagout system procedures

All equipment shall be locked out or tagged out to protect against accidental or inadvertent operation when such operation could cause injury to personnel. Do not attempt to operate any switch, valve, or other energy isolating device where it is locked or tagged out.

7.7.3 Periodic Inspection

The shop shall conduct an inspection of the energy control procedure at least annually to ensure the procedure and requirements of this policy are being followed and shall provide documentation sufficient to support the shop's audit by the bodyshop owner or safety personnel.



7.8 Emergency Action Plan



Emergency Action Plans outline potential problems that shops may encounter, and the actions that the emergency coordinator and all other employees must take. Procedures should be known for medical emergencies, small and large fires, explosions, chemical spills, floods, water main breaks, equipment failure, earthquakes, storms etc.

The procedures for responding to an emergency should be well understood by all employees. Protective equipment should be available, and employees should know what to do and when to evacuate the shop.

Employers with more than 10 employees are required to write an Emergency Action Plan. It is recommended however, that all shop owners write up an Emergency Action Plan regardless of the size of the shop.

Regular reminders about emergency equipment and evacuation plans should be part of all training programs. The shop evacuation routes should be posted along with emergency phone numbers and the physical location of specific hazards in the area.

Procedures for responding to emergencies should be understood before an emergency situation takes place. Protective equipment should be in place and employees should know how to act, who to notify and when to evacuate the shop in the event of an emergency.

Shop owners should make sure all employees know and understand company procedures in the event of an emergency. Shop evacuation maps should be posted along with emergency phone numbers and location of emergency equipment.

FIRST AID WALL CHART



All Shops should:

- 1) Keep emergency telephone numbers near the phone.
- 2) Post shop evacuation plans in designated areas.
- 3) Read MSDSs carefully and determine which chemicals are most dangerous in the event of a fire.
- 4) Fill out and post a copy of the Emergency Procedures Form for each area of the shop.
- 5) Have fire extinguishers, spill clean-up supplies, PPE, and eyewash stations available. Eyewash stations should be located no more than a 10-second travel time from all work stations and should provide at least 15 minutes of continuous water flow. (Note: Portable eyewash bottles are *not* considered to be an OSHA-approved eyewash station device and can only be used as an intermediate step.)
- 6) Ensure that exit doors are properly marked.
- 7) Train employees regularly.



Bodyshop Evacuation Plan

- Draw a map of your shop and insert it in your Emergency Action Plan.
- Post copy of map at several locations throughout shop and make sure employees know where emergency equipment and evacuation routes are located.



The Map of the Auto Bodyshop should include:

- ✓ Water, gas and electric shutoffs.
- ✓ Sanitary and storm drains, collection tanks and sumps.
- ✓ MSDS location
- ✓ Firefighting equipment
- ✓ Hazardous waste storage areas.
- ✓ Underground and aboveground storage tanks.
- ✓ Evacuation routes and meeting place.
- ✓ Fire hydrants.



Section Review: Recommended Autobody Shop Safety Procedures

- Always wear proper eye, ear, and skin protection when welding, grinding, or sanding.
- Always wear proper dust and paint respirators as needed. Shops will supply the respirators, and OSHA requires that they be used.
- No smoking is allowed in posted areas.
- No eating should be permitted in production areas.
- Report any safety violations or hazardous conditions to your supervisor immediately.
- Inspect any electrical equipment before use. Do not use if in need of repair. Report any defective equipment to your supervisor.
- Always wear protective gloves around sharp or ragged edges. Use appropriate gloves around hazardous materials.
- Report all accidents, injuries or illness to your supervisor immediately.
- Attendance at all shop training sessions, including "Right To Know" safety meetings, is mandatory.
- In case of an emergency, leave work areas through the most accessible exit leading away from the problem source.
- Know and follow the emergency evacuation plan.
- Read Material Safety Data Sheets (MSDS) and/or Product Data Sheets (or product labels directions and precautions) thoroughly before using paint or other chemical products.
- Inspect emergency equipment (such as fire extinguishers, safety showers or eye wash stations, spill kits, etc.) regularly.

Appendix A

RHODE ISLAND DEPARTMENT OF ENVIRONMENTAL MANAGEMENT OFFICE OF COMPLIANCE AND INSPECTION

HAZARDOUS WASTE CONTINGENCY PLAN GUIDANCE

Rule 5.02 (*Storage*) of the Rhode Island Rules and Regulations for Hazardous Waste Management requires that all hazardous waste generators prepare a formal written plan outlining specific steps that company personnel will take in response to spills, fires, and explosions or any unplanned release involving hazardous wastes or hazardous waste constituents which could threaten human health or the environment. This rule references 40 CFR 265 Subparts C and D of the Code of Federal Regulations (enclosed). This guidance was developed by the Department to assist companies in developing a good, thorough, and easy-to-read plan for use during an emergency involving hazardous waste. Although contingency plans are site-specific and can be of various levels of detail, this information may be useful as a general guide. Please note that the contingency plan guidance is not necessarily all-inclusive, and that the Department requires that the preparer address all of the items in 40 CFR Subparts C and D.

Please contact the DEM Office of Waste Management at (401) 277-2797 if you have specific questions regarding this guide or any other questions related to hazardous waste management.

INDEX/CONTENTS OF PLAN

1. Introduction
2. Index
3. Emergency Coordinators
4. Emergency Procedures
5. Emergency Equipment
6. Evacuation Routes
7. Facility Site Diagram
8. Arrangements with Local Authorities

EMERGENCY COORDINATORS

The emergency coordinators listed in this section are authorized to act as on-scene coordinators and to commit the necessary resources during an emergency. At all times, there is at least one coordinator (primary or alternate) either on the company premises or on-call. The coordinators must be familiar with all aspects of the contingency plan, all operations and activities at the company, the locations and characteristics of wastes handled, the location of all company records, and the physical layout of the company. The emergency coordinator will take all reasonable measures to ensure that fires, explosions, and/or releases do not occur, recur, or spread to other areas in the company. These measures shall include, where applicable, stopping processes and operations, collecting and containing released waste, and removing or isolating containers.

The coordinators are as follows:

Primary Coordinator:

Name:

Address:

Phone number (work/ home):

Alternate Coordinator:

Name:

Address:

Phone number (work / home):

Note: Qualifications of the emergency coordinators should be included in a separate enclosure.

EMERGENCY PROCEDURES

During an emergency, the emergency coordinator shall perform the necessary actions to insure a timely and appropriate response. The coordinator shall choose the order and applicability of the following actions, based upon the situation and the hazardous waste or hazardous waste constituents involved:

1. Identify and assess the situation (source, health, and environmental impact),
2. Activate alarm to notify all company personnel,
3. Evacuate the company, if necessary,
4. Determine action to be taken (e.g. containment, absorption),
5. Oversee the cleanup throughout its entirety.
6. Within 15 days after the incident, emergency coordinator must submit a written report on the incident to the DEM and the EPA Regional Administrator.

Note: Emergency procedures should be a step-by-step, site-specific plan which would be implemented in the event of an emergency. A detailed description of actions to be taken by company personnel during an emergency should be included.

EMERGENCY EQUIPMENT

The following equipment should be found in good condition at the company. Include the physical description and capabilities of each item:

EQUIPMENT PHYSICAL DESCRIPTION AND CAPABILITIES

Alarm system

Communication Systems

Fire Extinguishers

Sprinkler Systems

Spill Control

Personnel Protection

Other

Note: Location of emergency equipment should be indicated on site diagrams.

EVACUATION ROUTES

In the event an emergency arises involving hazardous waste where an evacuation of company personnel becomes necessary, the following evacuation plan would be implemented. Include a description of the signal that would be given to begin evacuation and both primary and secondary evacuation routes personnel would utilize.

Note: Indicate evacuation routes on facility site plan.

FACILITY SITE DIAGRAM

Note: Indicate location of emergency equipment, hazardous waste storage area(s), and both primary and secondary evacuation routes.

ARRANGEMENTS

The following local authorities have been sent copies of the contingency plan:

Police

Fire

Hospital

Response Contractor

Other

Note: Identify the primary emergency authority where more than one police or fire department may respond. Describe arrangements agreed to and provide documentation of local authority notifications.

I have read and understood the Contingency Plan and Emergency Procedures.

Employee's Name (Print)

Signature

Date

Appendix B

RHODE ISLAND DEPARTMENT OF HEALTH

Sample Written Hazard Communication Program

Introduction

The Hazard Communication Standard requires you to develop a written hazard communication program. The following is a sample hazard communication program that you may use as a guide in developing your program.

Our Hazard Communication Program (SAMPLE)

General Company Policy

The purpose of this notice is to inform you that our company is complying with the OSHA Hazard Communication Standard, Title 29 Code of Federal Regulations 1910.1200, by compiling a hazardous chemicals list, by using MSDS's, by ensuring that containers are labeled, and by providing you with training.

This program applies to all work operations in our company where you may be exposed to hazardous substances under normal working conditions or during an emergency situation.

The safety and health (S&H) manager, Robert Jones, is the program coordinator acting as the representative of the plant manager, who has overall responsibility for the program. Mr. Robert Jones will review and update the program, as necessary. Copies of the written program may be obtained from Mr. Jones in Room SD-10.

Under this program, you will be informed of the contents of the Hazard Communication Standard, the hazardous properties of chemicals with which you work, safe handling procedures, and measures to take to protect yourselves from these chemicals. You will also be informed of the hazards associated with non-routine tasks, such as the cleaning of reactor vessels, and the hazards associated with chemicals in unlabeled pipes.

List of Hazardous Chemicals

The safety and health manager will make a list of all hazardous chemicals and related work practices used in the facility, and will update the list as necessary. Our list of chemicals identifies all of the chemicals used in our ten work process areas. A separate list is available in each work area and is posted there. Each list also identifies the corresponding MSDS for each chemical. A master list of these chemicals will be maintained by, and is available from Mr. Jones in Room SD-10.

Material Safety Data Sheets (MSDSs)

MSDSs provide you with specific information on the chemicals you use. The safety and health manager, Mr. Jones, will maintain a binder in his office with an MSDS on every substance on the list of hazardous chemicals. The MSDS will be a fully completed OSHA Form 174 or equivalent. The plant manager, Jeff O'Brien, will ensure that each work site maintains an MSDS for hazardous materials in that area. MSDSs will be made readily available to you at your work stations during your shifts.

The safety and health manager, Mr. Jones, is responsible for acquiring and updating MSDSs. He will contact the chemical manufacturer or vendor if additional research is necessary or if an MSDS has not been supplied with an initial shipment. All new procurements for the company must be cleared by the safety and health manager. A master list of MSDSs is available from Mr. Jones in Room SD-10.

Labels and Other Forms of Warning

The safety and health manager will ensure that all hazardous chemicals in the plant are properly labeled and updated, as necessary. Labels should list at least the chemical identity, appropriate hazard warnings, and the name and address of the manufacturer, importer or other responsible party. Mr. Jones will refer to the corresponding MSDS to assist you in verifying label information. Containers that are shipped from the plant will be checked by the supervisor of shipping and receiving to make sure all containers are properly labeled.

If there are a number of stationary containers within a work area that have similar contents and hazards, signs will be posted on them to convey the hazard

information. These written materials will be made readily available to you during your work shift.

If you transfer chemicals from a labeled container to a portable container that is intended only for your immediate use, no labels are required on the portable container. Pipes or piping systems will not be labeled, but their contents will be described in training sessions.

Non-Routine Tasks

When you are required to perform hazardous non-routine tasks (e.g., cleaning tanks, entering confined spaces, etc.), a special training session will be conducted to inform you regarding the hazardous chemicals to which you might be exposed and the proper precautions to take to reduce or avoid exposure.

Training

Everyone who works with or is potentially exposed to hazardous chemicals will receive initial training on the Hazard Communication Standard and the safe use of those hazardous chemicals by the safety and health manager. A program that uses both audiovisual materials and classroom type training has been prepared for this purpose. Whenever a new hazard is introduced, additional training will be provided. Regular safety meetings will also be used to review the information presented in the initial training. Foremen and other supervisors will be extensively trained regarding hazards and appropriate protective measures so they will be available to answer questions from employees and provide daily monitoring of safe work practices.

The training plan will emphasize these items:

- Summary of the standard and this written program.
- Chemical and physical properties of hazardous materials (e.g., flash point, reactivity) and methods that can be used to detect the presence or release of chemicals (including chemicals in unlabeled pipes).
- Physical hazards of chemicals (e.g., potential for fire, explosion, etc.).

- Health hazards, including signs and symptoms of exposure, associated with exposure to chemicals and any medical condition known to be aggravated by exposure to the chemical.
- Procedures to protect against hazards (e.g., personal protective equipment required, proper use, and maintenance; work practices or methods to assure proper use and handling of chemicals; and procedures for emergency response).
- Work procedures to follow to assure protection when cleaning hazardous chemical spills and leaks.
- Where MSDSs are located, how to read and interpret the information on both labels and MSDSs, and how employees may obtain additional hazard information.

The safety and health manager or designee will review our employee training program and advise the plant manager on training or retraining needs. Retraining is required when the hazard changes or when a new hazard is introduced into the workplace, but it will be company policy to provide training regularly in safety meetings to ensure the effectiveness of the program. As part of the assessment of the training program, the safety and health manager will obtain input from employees regarding the training they have received, and their suggestions for improving it.

Contractors

The safety and health manager, Robert Jones, upon notification by the responsible supervisor, will advise outside contractors in person of any chemical hazards that may encountered in the normal course of their work on the premises, the labeling system in use, the protective measures to be taken, and the safe handling procedures to be used. In addition, Mr. Jones will notify these individuals of the location and availability of MSDSs. Each contractor bringing chemicals on-site must provide us with the appropriate hazard information on these substances, including the labels used and the precautionary measures to be taken in working with these chemicals.

Additional Information

All employees, or their designated representatives, can obtain further information on this written program, the hazard communication standard, applicable MSDSs, and chemical information lists at the safety and health office, Room SD-10.

Appendix C

RHODE ISLAND DEPARTMENT OF HEALTH

Sample Personal Protective Equipment Program

Introduction

The purpose of this program is to minimize the risk of injury to employees through the use of personal protective equipment, (PPE). PPE devices are not solely relied upon to protect against hazards. Rather, these devices will be used in conjunction with guards, engineering controls, and other sound manufacturing practices.

Procedures

(NAME) is the PPE program coordinator, and is responsible for the following:

1. Developing and administering a PPE program that is specific to the facility.
2. Conducting and assuring the timely completion of workplace hazard assessments.
3. Selecting the appropriate PPE for the hazards likely to be encountered, as determined through the hazard assessment.
4. Assisting in the selection of approved personal protective equipment and helping assure that an adequate inventory is maintained in the facility.
5. Assuring training and certification of all affected employees.
6. Enforcing the use of specified PPE in required areas.
7. Wearing of required PPE in designated areas.
8. Conducting task-specific training on necessary PPE for all employees under their supervision.
9. Assisting in the completion of the hazard assessment for the worker's under their supervision.
10. Assuring that contractor's performing special projects (machine installation, facility repairs, etc.) are advised, during the bidding process, that they are to supply their employees with the PPE that is required in the facility, as well as any additional PPE that the scope of the job may indicate.

11. Wearing of (by contractors) appropriate PPE whenever working in designated areas.

Employees are responsible for the following:

- a) Wearing PPE at all times in designated areas.
- b) Cleaning, maintaining and inspecting PPE.
- c) Immediately notifying supervisors of any problem you encounter with the use of PPE.
- d) Actively participating in the training and certification process.

Written Certification of Workplace Hazard Assessment

This is to certify that (name) has evaluated (process) on (date) in order to determine if PPE is required and if so, what specific type is required.

The following PPE is required for this operation or work area:

PPE Required	Type	Hazard
--------------	------	--------

A workplace hazard assessment has been conducted to determine if hazards are present, or are likely to be present.

When this assessment was conducted the following basic hazards were considered:

- Impact (flying particles or falling objects)
- Sharp objects (pierce foot or cut hand/arms)
- Compression (roll over or dropped objects)
- Chemical exposure (including splash or routine handling exposure)
- Heat (high temperature or sparks capable of causing burns or eye injury)
- Light (optical)
- Radiation (furnaces, welding, heat treating, high intensity lights).

Personal Protective Equipment Certification of Training

The following employees will be trained by (name) on the following subjects:

When PPE is required;

What PPE is required;

How to properly wear and adjust the required PPE;

Limitations of the required PPE;

The proper care, maintenance, useful life and disposal of the required PPE.

All employees trained have demonstrated an understanding of this information.

Work Area/Operation

Employee's Name

Date of Training

Appendix D

RHODE ISLAND DEPARTMENT OF HEALTH

Sample Respiratory Protection Program

I. Company Policy

1. The intent of this written program is to define company rules regarding the use of respirators for personal protection against harmful dust, fogs, fumes, mists, gases, sprays, or vapors (list the hazards specific for your company). Wherever feasible, engineering controls shall be adopted, however, in those cases where enclosure and/or confinement of operations, or ventilation controls and/or product substitution is either inappropriate, unreliable, or temporarily ineffective, respirators shall be used according to company guidelines. These rules are not optional; they are mandatory for individuals who are required to wear respirators.
2. Only company furnished respirators shall be used. All respirators are certified by the National Institute for Occupational Safety and Health (NIOSH).
3. Employees of (company name) shall only use the respirators provided by the company and in accordance with the instructions and training they have received. If you are unsure of equipment or instructions, consult one of the designated Respirator Monitors listed below before attempting a task requiring respirator use.
4. Respirators have been selected on the basis of the hazard(s) which are present or may become present during an employee's work activities. Management has reviewed the respiratory protection section of the Material Safety Data Sheets for chemical exposures of concern, made use of air monitoring results, utilized manufacturer's respirator selection guides, and consulted with sales representatives in order to provide employees with adequate respiratory protection for existing hazards in the facility. The following types of respirators are available.

- a) 3M 8710 respirator (dust/mist) -utilize when working in the fluff room #1 polishing bench.
- b) Wilson 42491 full face respirator with acid mist cartridge -utilize when entering glass etching booth to perform maintenance or cleaning.
- c) Facial air-powered respirator with HEPA filters -for lead filing in the electro-guard department.

II. Authority and Responsibility

1. This program is administered by Edgar Begood, Operations Manager. He will ensure that the objectives of this program are met and that adequate time, training, and funding is available for its operation.
2. Specific respiratory protective equipment shall only be selected by the Respirator Monitors under the guidance of the Administrator. These employees have received the necessary training to provide instruction in respirator use:
 - a) Edgar Begood, Operations Manager (1st Shift)
 - b) Jean Toffey, 1st Shift, Safety Committee Chairperson
 - c) William Taft, 2nd Shift Supervisor
 - d) Oscar Myer, 3rd Shift Paint Foreman
3. All employees who use respirators shall be instructed and trained in the use, maintenance, inspection, seal checks, storage, and limitations of this equipment on an annual basis (more often if necessary) by one or more of the above Monitors. Workers will receive a Respirator Issuance and Training Card when the monitor determines that they have demonstrated sufficient knowledge of competent respirator use. The card will be in effect until the following year's training period.
4. Inspection: A respirator will be inspected by the employee wearing it prior to each use. All respirators will be inspected monthly by the Monitors. Written records will be maintained of these inspections and will be kept with this document. Worn or deteriorated parts shall be replaced. The following employees are responsible for the monthly respirator inspection:
 - a) Jean Toffey inspects 1st shift.
 - b) William Taft inspects 2nd shift.
 - c) Oscar Myer inspects 3rd shift.

Jean Toffey and William Taft will be responsible for providing an inventory of spare parts and performing minor repairs on respirators.

III. Medical Evaluation

1. Prior to respirator use (including fit testing) employees shall receive a physician's medical evaluation to determine if they are able to wear a respirator. Employees will report to (medical service name) with their respirator and a description of the type of work they will be performing provided by the shift's Respirator Monitor (it will include the expected physical work effort, duration and frequency of respirator use, and average temperature and humidity expected). We will also provide you with a copy of this written program and a copy of the standard - Section (e) Medical Evaluation and Appendix C will be highlighted.
2. While additional medical evaluations after the initial respirator assignment are not time-dependent, but event-related, the company has elected to have employees evaluated once every five years unless otherwise specified by (1) the attending physician or the Program Administrator; (2) the employee reports symptoms of inability to wear a respirator; (3) information from the respiratory protection program indicates a need for reevaluation; (4) a change in workplace conditions increases the physiological burdens on employees.
3. Physicals shall be provided at no cost and without loss of pay to the employee.
4. The physician's written recommendation on an employee's eligibility to wear a respirator will be kept on file and updated as necessary. The employee will be supplied a copy.

IV. Fit Testing

1. No employee shall be issued a respirator without being tested to determine if the respirator fits properly. The company has determined that no exposures on site are in excess of 10 times existing OSHA PELs and accordingly, will utilize qualitative testing as outlined by OSHA-accepted protocols for irritant smoke to determine proper respirator fit for employees. The Respirator Monitors may perform this testing using the Wannabe Respirator Test Kit or you may be sent

to Williams Respirator Supply House who has agreed to perform this OSHA mandated fit test for the company.

2. Fit testing will be conducted:

- a) annually, or when a physician, supervisor, or program administrator notes a significant weight change in the employee (20 pounds or more);
- b) after scarring in the area of face piece seal;
- c) after significant dental changes;
- d) after reconstructive or cosmetic surgery;
- e) after any conditions that may interfere with face piece sealing.

3. If a proper face seal can not be accomplished with a negative pressure respirator, a powered air-purifying or air-supplied respirator may be required instead.

4. No facial hair which interferes with satisfactory fit of the mask-to-face seal is allowed on personnel if they are required to wear a respirator. Employee must be clean shaven when reporting for the fit test.

5. The person or company conducting the fit test will complete a Respirator Fit Test Record form and ensure it is kept in the employee's training file until replaced by the following year's test.

V. Operating Procedures for Respirators

1. Cleaning: Respirators will be kept in a sanitary condition, dirty respirators which are not discarded shall be thoroughly inspected, disassembled, and cleaned. The components will be cleaned and disinfected using warm water, mild detergent with disinfectant, and the nylon brush located near the wash sink outside the laboratory area. After rinsing in clean water, respirators will be allowed to air dry prior to storage.

2. Storage: Respirators will be placed in individual plastic bags when not in use during the workday; after the respirator is cleaned at the end of the shift, respirators will be placed face up in the individual's respirator storage box adjacent to the cleaning sink.

3. Respirators may not be worn when conditions such as dirt, facial hair, etc. prevent a good face seal. Employees may always take time to wash their face and respirator to prevent eye and skin irritation. To assure proper protection, the face piece seal must be checked by wearing before each use. This is accomplished in the following procedures:

- a) Positive pressure test: close off exhalation valve with your hand. Breathe air into the mask. The face fit is satisfactory if some pressure can be built up inside the mask without air leaking out between the mask and the face.
- b) Negative pressure test: close off the inlet opening of cartridge with the palm of your hand. Some masks may require that the filter holder be removed to seal off the intake valve. Inhale gently so that a vacuum occurs within the face piece. Hold your breath 10 seconds. If the vacuum remains and no inward leakage is detected, the respirator is properly adjusted.

4. Limitations of Air Purifying Respirators:

- a) Cartridge service life is limited. Always leave the contaminated area if smell or taste is detected or when breathing becomes difficult or dizziness or other distress occurs. The company will supply End of Service Life Indicators (ESLI) wherever possible. In the event that ESLIs are not available, we have arrived at a cartridge change schedule for your specific respirator and work area based upon information we have gathered from air sampling results, equipment suppliers and manufacturers.
- b) Cartridges must be selected on the basis of the individual contaminant and its concentration level -this selection will be made by the Respirator Monitors who base their decisions on MSDS's, manufacturer's use selection guides, and air monitoring results.
- c) The air purifying respirator does not supply oxygen and therefore should never be used in an oxygen-deficient atmosphere or to enter an area of unknown contaminant or

concentration. Half-mask respirators generally provide protection for up to 10 times the permissible exposure limit. (Full faced respirators in this facility are limited to this same exposure level due to our selection of fit testing methods). An air-purifying respirator cannot be used in an Immediately Dangerous to Life or Health (IDLH) concentration of a chemical. If you do not know if your respirator will protect you from a chemical exposure, do not enter the area until you have checked with your Respirator Monitor.

5. Emergency Respiratory Equipment: **(Note - this type of equipment may not be required for your company)** Self-contained breathing apparatus may be required in specific areas for emergency use. This equipment will be used only by trained personnel when it is necessary to enter hazardous atmospheres. The following points should be considered:

- a) All potential users will be fully trained in the use of this equipment.
- b) When the equipment is used, it will be tested in an uncontaminated atmosphere prior to entering the hazardous area if possible.
- c) An employee will not work with this apparatus in a hazardous atmosphere on an individual basis. At least one additional employee suitably equipped with a similar breathing apparatus must be in contact with the first employee and must be available to render assistance if necessary.
- d) This equipment will be inspected monthly by trained department or group personnel. Inspection and maintenance information will be recorded in a log book and the current inspection will be checked off on tags attached to the storage compartment.

VI. Administration

1. Day to Day Operation: A Respirator Monitor has been assigned for each shift and shall be responsible for monitoring work area conditions and employee exposure. The designated Monitor shall evaluate the capabilities of the worker prior to

respirator use. Such an evaluation shall include determining whether the worker is physically able and qualified to use respiratory equipment during the shift. The designated monitor shall insure that respirators are being used correctly during the shift.

The designated monitor shall determine when changes in workload, materials, or techniques result in increased exposures that require additional air monitoring. This information shall be passed on to the Program Administrator, Edgar Begood, who will provide for the air sampling.

2. Program Evaluation: This respiratory program will be evaluated as necessary and, at least, annually by Edgar Begood. The evaluation will include:

- a) Program effectiveness -arrived at by observation and interviews with employees and managers.
- b) Equipment repair and maintenance -arrived at by inspection of equipment and supplies.
- c) Respirator training -arrived at by review of training records and interviews with employees.
- d) Medical surveillance -arrived at by review of records.
- e) Employee monitoring -arrived at by observation and interviews with employees and managers.

-End of Sample Respirator Program-

Appendix E: Additional References

OSHAstuff.com by Amboy Associates

7945 Dunbrook Road, Suite I

San Diego, CA 92126

(800) 448-4023

www.oshastuff.com

OSHA Compliance Products for the Autobody Industry

The University of Florida Environmental Health & Safety Department

Building 1079, P.O. Box 112190,

Gainesville, FL 32611-2190

(352) 392-1591

www.ehs.ufl.edu

Leonard Safety Equipment

253 Waterman Avenue

East Providence, RI 02914

(401) 434-4660

www.leonardsafety.com